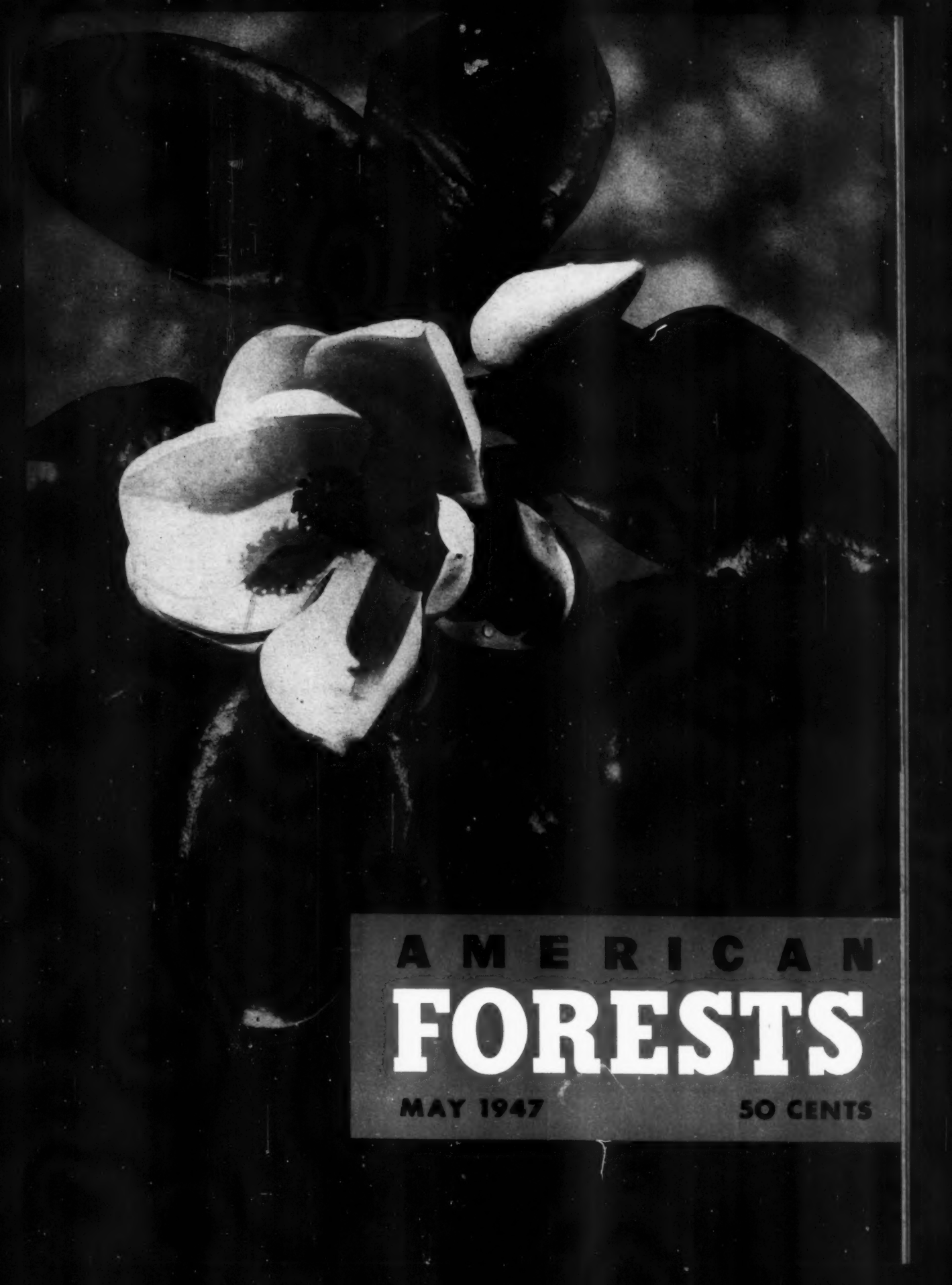

AMERICAN FORESTS

MAY 1947 50 CENTS

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2 Achievement of this kind reflects the skill, energy and determination of the 617,000 people working together on the Bell System team. What has been done has not been done easily. Many thousands of new employees have been trained in telephone work. It has been necessary to overcome serious difficulties caused by the persistent scarcity of certain essential raw materials needed in large quantities.

3 Most of those who were waiting for Bell telephone service at the start of 1946 had been cared for by the year's end. In addition, the System was able to take care of more than 70 per cent of all new applications received. Yet the total number of new requests for service was so great (there were more than five million) that at the beginning of 1947 there were still about two million people waiting for service.

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BELL TELEPHONE SYSTEM

AMERICAN FORESTS

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"Magnolia"
Photograph by Fonville Winans

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Dogwood, near Dayton, Ohio
D. E. Ahlers

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The Purpose

The American Forestry Association is a national organization—educational in character—for the advancement of the intelligent management and use of the country's forests and related resources of soil, water, wildlife and outdoor recreation. Its purpose is (1) to bring about adequate protection and perpetuation of these resources by creating an enlightened public appreciation of the need of conserving them through wise use for the present and future welfare and enjoyment of all the people; (2) to make available to Americans in all walks of life a wider knowledge and appreciation of their forest resources and the part they can play in the social and industrial life of our nation.

The History MORE THAN half a century ago American men and women of vision, stirred by the rapid destruction of forests and forest life in the United States, began to raise their voices in behalf of conservation. Foreseeing the danger of allowing America's rich forests and vast natural wealth to be thoughtlessly wasted, these public-spirited individuals protested the needless destruction that was taking place. Out of their efforts came a collective force—The American Forestry Association, first organized in 1875 and made a national influence in 1882.

The Record THUS The American Forestry Association has a long record of efficient public service. The establishment of the United States Forest Service and the creation of the nationwide system of state and national forests and parks were due in no small part to the Association's efforts. Its educational work, extending over more than seventy years, has stimulated public action and built public support for protection against forest fires and floods; for prevention and control of soil erosion; for the development of conservation policies in forest management for continuous production through wise use; for the control of forest insects and diseases and the preservation of fish and wildlife.

The Support FROM AN ORGANIZATION of a few hundred members three decades ago, the Association has attained a substantial membership of many thousand men and women, living in every state in the Union and in foreign countries throughout the world. The funds of the Association are administered by a Board of Directors composed of individuals of national standing—men and women who give their services free, who have a practical understanding of the nation's present-day conservation needs, and are equipped through experience, ability, enthusiasm and training to advance the Association's program.

The Program BECAUSE OF its independent, non-political character, the work of The American Forestry Association is vitally necessary in the field of public service. It provides an unprejudiced influence for the development of sound conservation measures. It helps coordinate public, state and federal policies. It cooperates closely with federal, state and private agencies in conservation work. At the same time it initiates, sponsors and carries on needed projects in conservation in addition to its regular broad continuous program of education.

MY FAVORITE TREE

By

PAUL H. GRIFFITH

National Commander, The American Legion

Chase-Statler Photo

THE design and character of the American elm offer, for me, the most eloquent endorsement of Joyce Kilmer's immortal line: "But only God can make a tree."

From New England to the Rocky Mountains and southward to Texas the American elm flourishes. Sturdy and majestic, yet delicate in detail, it weathers the cycle of seasons with remarkable tenacity.

I believe it is this ability to "take it" which first endeared the American elm to me. In my native Pennsylvania it absorbs a long, bitter winter. As a youth I could not help marvel each spring that the tree had not only survived, it was producing an abundance of perfectly formed blossoms before the leaves appeared. This rare combination of sheer strength and gracious beauty, the distinctive characteristics of the American elm, is certainly both a tribute to and acknowledgment of its Architect.

During the summer months this stately elm comes into its own as a shade tree. Its heavy foliage fanning out from a firm, towering trunk is a boon to thousands of outdoor Americans. It reaps a reward then, in terms of respect and popularity, for hardship endured the previous winter.

This way of reward through sacrifice—of gain through effort—is the American way. I am especially indebted to the American elm for pointing it out to me.

On "Managing Your Woodlands"

SIR: Your department "Managing Your Woodlands" should fill a much needed vacancy in a systematic approach in putting out woodland management information.

At some future time I would appreciate receiving the formula on how to accomplish two educational jobs: (1) keeping livestock out of woodland in the country where woodland is generally considered to be worthless from a forest products standpoint; and (2) means of obtaining greater participation in the cultivation of windbreaks and shelterbelts on the northern Great Plains, in that range belt which is slightly on the plus side of the so-called borderline or semi-arid area. — *John J. Zaylskie*, extension forester, State College Station, Fargo, North Dakota.

SIR: Your "Managing Your Woodlands" page can be of great value in inducing woodland owners to practice forestry.—*Charles B. Kresge*, farm forester, Oneonta, New York.

SIR: It would seem that the "Managing Your Woodlands" section can render its greatest contribution to American forestry by confining its efforts primarily to the problems confronting small woodland owners. Articles which deal with the practical solution of farm forestry problems will be read with interest by everyone interested in forestry. Aside from containing considerable human interest, such articles are written in a language we all understand — that is, dollars and cents. — *Charles C. Larson*, extension forester, Burlington, Vermont.

SIR: I like your approach in developing the economic desirability of maintaining woodlands. That seems to be the major problem in north Idaho—many farmers apparently strongly believe the management of their woodlands entails expense without return until some indefinite future time. I believe that opinion can be changed and I am confident such articles as "Acres of Diamonds" will help in working toward that goal. Let's have more stories of a similar nature from different parts of the country. — *Vernon H. Burlison*, assistant extension forester, Moscow, Idaho.

Mr. Preston Please Note

SIR: I believe the author (John F. Preston) of the article "Facing the Facts About Farm Forestry" (February issue) would do well to attend any local USDA Council meeting. Here he can observe how all agencies are working together and that in most cases the local forester is "on tap" to help develop and assist in the management of local resources.—*John N. Fields*, farm forester, Department of Conservation, State of Michigan.

He Who Plants a Tree —

SIR: I would like to express my deep appreciation of the March issue of AMERICAN FORESTS. Nowhere have I been able to find such comprehensive treatment of our forest situation.

Though not a professional forester, I have strong forestry leanings, as is most appropriate for a soil conservationist. I count among my greatest pleasures and achievements the many small farm forests I have helped along in my work. Most of our forestry in central Michigan soil conservation districts is small scale compared to commercial forestry, but we do work with a great many landowners—and therein lies the pleasure. Something strong and clean happens to a man when he plants a tree, be it a single tree or thousands, and that "something" doesn't hinder soil conservation.—*H. D. Lakin*, district conservationist, Soil Conservation Service, Portland, Michigan.

"German Forestry is Dead"

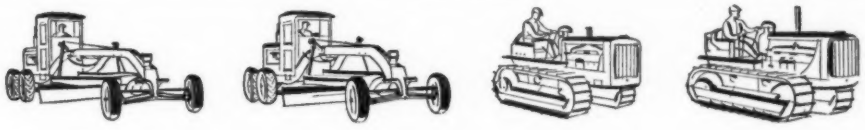
SIR: On February 14 I was notified by the librarian of the American Army in Heidelberg that back copies of AMERICAN FORESTS were available to me as a loan for six months! I am so grateful, for I am deeply interested in forestry—and forest—developments in the United States. Imagine, my wildest pipe dreams of 1895 are about to become realities! I am now almost 80 years old. It is no blessing, this old age. But when you live so long and see the fruition of your seeds—what a rare treat old age becomes!

From all I hear, the time for sustained forestry is ripe in the United States—or rather in many sections of the USA. By a queer coincidence sustained forestry in Germany — where it originated some 150 years ago—has come to an end. It was killed by the Nazis, like many other good things. The yields have not been sustained anywhere since 1936. The woods are getting so thin that thinnings cannot be made any more. Natural seed regenerations are failing because the mother trees are failing. And wherever you look you see huge blanks, barrens, clearings waiting for afforestation.

Unfortunately, the German forests have had, undeniably, a large "war potential." No country can wage war that does not have forests. Thus, so as to disarm Germany forever, the victors as well as the vanquished apparently are anxious to destroy Germany's "war potential." The cry for lumber here is greater than it ever was. All the cities require rebuilding. New furniture is needed. Imports of grain are financed by exports of lumber to England. But worst of all is the lack of coal making it necessary that 60 million people use fuelwood. The industries, the offices, the schools, the railroads — all are crying for fuelwood. If Germany had not had forests and forests aplenty, no one would be living here today!

What will the future bring? No doubt the old systems of forestry are no longer applicable. New systems, methods and principles must be elaborated. What I have learned and what I have preached is today nonsensical. The various systems of thinnings are tommyrot; the various methods of seed regeneration are not applicable. The industries must use other raw materials. German forestry is dead.—*C. A. Schenck*, 16 Lindenfels Im Odenwald, Germany.

A new "FIGHTING FOUR"!



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Editorial

We Go Ahead—Together

IN launching its program for American forestry (see "A Statement of Action" on page 209), the Board of Directors of The American Forestry Association with commendable realism has charted a course of nationwide cooperation with existing public and private agencies and associations. By so doing, it calls into collective action in support of common goals the tremendous force and power of the nation's far-flung network of conservation organizations.

The importance of this cannot be overemphasized. By and large, the story of American forestry at all levels—local, state and national—is one of remarkable achievement. Over the years public and private agencies and associations have driven forward with great energy to bring forestry in this country to its present level. This hard and often thankless job has developed men of sound judgment, imagination and courage. The experience of a half century of conservation effort is wrapped up in these organizations. To them is anchored the whole forestry movement.

Mistakes, of course, have been made—and the national interest is not always served by the tendency of some organizations to set their sights in accordance with their own interpretation of conditions and needs. This practice undoubtedly will give way to a program and leadership that takes into account all of the facts, all of the problems, and the long-range view.

That the Association's program for American forestry, to which all of the major fields of forest interest contributed, and its independent leadership can achieve this unity of purpose seems assured by the support both have received not only from public and private agencies and associations but from the public at large.

The first important step is to organize this support and to draft a pattern of cooperative effort. To this vital function the American Forestry Council, composed of leaders in the various fields of forest interest and public affairs, will make important contributions. In fact the Council, which will serve in an advisory capacity to the Board of Directors of the Association, will be the primary means of coordinating national effort and at the same time serve as a clearing house for the interchange of information and action.

Here, we feel, is a workable blueprint for success, a practical means of uniting the nation to achieve greater security through more productive use of its forest resources. What is made of this opportunity is the challenge every individual and all groups, public and private, must face.

Fire Prevention Gets A Lift

AS a springboard for action, President Truman has called a National Conference on Fire Prevention in Washington for early May (see page 212). The reason — mounting fire losses, mainly urban and industrial, since the war's end. The first organized national effort to combat the fire menace, much is expected of the conference.

Committees of experts have been busy for several months preparing data to lay before the conference, along with well-considered recommendations for the reduction of fire occurrence and damage. This means that the conference should have a clear and comprehensive picture of the country-wide fire situation and what to do about it.

The prevention and control of forest fires, heretofore generally ignored or at best given secondary consideration when city, industrial and rural firemen gather, will be included in this picture. Numerous forest protection men serving on the committees have taken full advantage of the opportunity to drive home the high fire risk which forests constitute in many sections of the country, and to lay down specific recommendations for effective protection of these resources. What emphasis the conference in its final deliberations will place on this highly important phase of the national fire problem remains to be seen, but there is hope it will be substantial enough to give forest fire prevention a much needed lift.

At best, however, the conference can serve only as a springboard for action. The acid test of its effectiveness will be in follow-up activities, the application of measures resolved upon. This could be enhanced by a national action committee, as will undoubtedly be proposed, to correlate the efforts of all organizations interested in an anti-fire campaign.

But material progress in forest fire prevention and control will depend in large measure on federal, state and private expenditures for these purposes. Rising costs of manpower, equipment and supplies, along with higher protection standards, have increased requirements for adequate protection from $18,000,000 to around $32,000,000.

The current budget estimate of $9,000,000 as the federal share of the national forest fire bill obviously is inadequate. Under the Clarke-McNary principle of federal funds to match those expended by state and private agencies, the federal share should be $16,000,000. An economy-minded Congress, however, has given no assurance that it will approve even the $9,000,000 requested in the budget.

Therefore, the burden of increased fire protection costs, including prevention, will have to be borne by the states and private agencies — and many are already girding to meet the emergency. In fact, state and private funds now top $14,000,000. How the $5,000,000 deficit in federal matching funds—and this assumes Congress will approve the budget estimate — will affect the generally intensified campaign to reduce fire losses, is something to think about.

Certainly it highlights the urgency of more effective prevention measures—and the critical need of such a conference as the President has called.

"Blue Ridge Cascade," Old Fort, North Carolina—U. S. Forest Service Photograph

Only fifteen percent of Greece was forested at the beginning of the war—and this area has been heavily reduced in the past decade. Here is typical scrub oak forest

F. G. Renner Photo

One reason for economic chaos...

FOREST DESTRUCTION IN GREECE

Forest poverty is the price Greece is paying for neglect. Now devastated by war and torn by civil strife, she must look elsewhere for desperately needed lumber. Here is a first-hand account of her plight

By M. B. DICKERMAN

CENTURIES of neglect, six years of World War II and two years of civil war have all taken a toll on the forest resources of Greece. In large measure, this depletion, coupled with the companion decline of soil and water resources, is one of the basic reasons for the acute economic situation in Greece today.

Evidence of the effect of neglect is seen wherever one goes in Greece. Last year the writer stood at the Pass of Thermopylae, where in 480 B.C. Leonidas and 300 Spartans, in a dense forest of oak, turned back the Persian armies. Today one finds only sterile soil, barren rock and scattered clumps of scrub oak. Looking northeast from Thermopylae is the Mailan Gulf. In between, for a distance of about five miles, is a rocky alluvial plain created by the soil washed down from the treeless mountains. Where this plain stands high and dry, the Persian and Greek navies once fought!

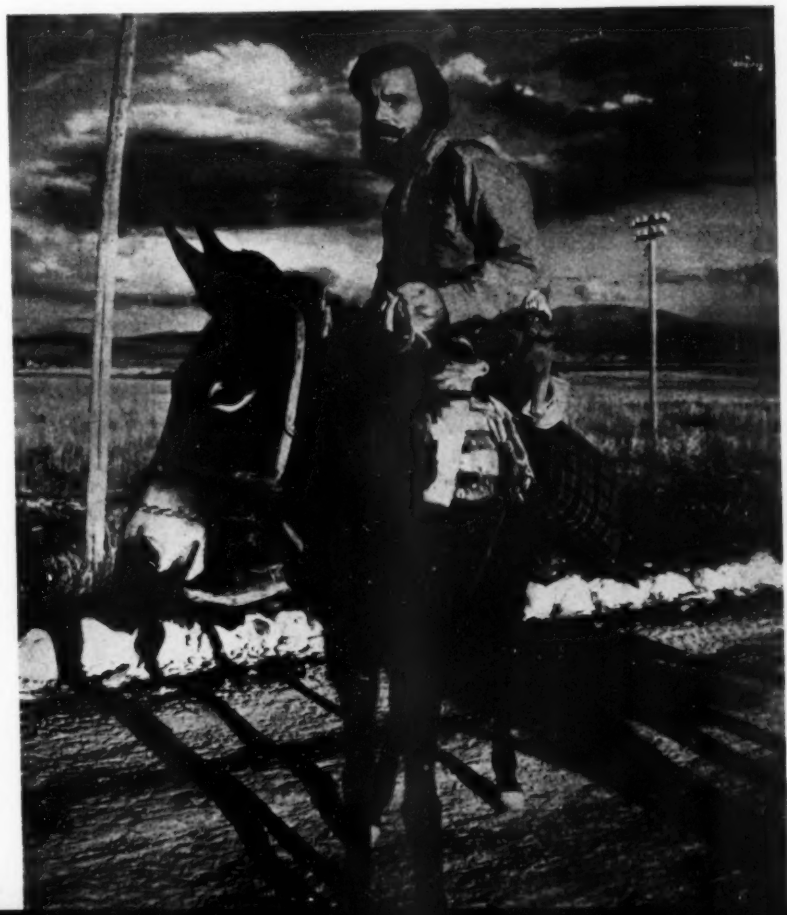
As one flies down along the western coast from Albania, then eastward over the Gulf of Corinth, two things stand out: the clear blue waters of the Adriatic and the barren limestone slopes of the coastal mountains. Forests, which historians say once covered these slopes, were gradually destroyed by man's exploitation and now slightly less than 15 percent of Greece is forested.

The present sorry state of these Grecian forests is a product of long centuries of neglect and a decade of intensive devastation. Timber stands were hit particularly hard by World War II. According to Greek foresters, the modern invaders were master destroyers compared to the Romans and Turks. The Bulgarians, for example, protected the forests in that part of Greece which they planned to annex, but cut indiscriminately in other areas. In Attica, the region around Athens, 130 thousand acres of forest land were denuded.

The writer walked over much of this area and was not able to find a single tree and only a few pieces of oak brush large enough for firewood. Tatoi Forest, once the pride and joy of Greek foresters, was also completely wrecked. German troops cut the standing timber and burned the entire area. Mt. Penitilhon, once covered with oak brush and pine plantations, was stripped for fuelwood. According to Anton Christodoulopoulos, director of forests, 25 percent of the total forest land in Greece was denuded either for military timber needs of the occupation troops, for domestic fuel, or to smoke out Greek resistance troops.

Not only did the invaders sack the forests—they destroyed the forest industries. Prior to hostilities, beginning about 1936, the Greek government had undertaken a program

Press Association, Inc.



Forest fire is a weapon in Greek guerilla warfare

With one out of every four homes in ruins, Greece struggles with reconstruction armed mainly with the ax and primitive whipsaw

F. G. Renner Photos

Familiar sight in Greece today is a string of donkeys laden with fuelwood. The people take what they can get from the nearest forest

of mechanizing the lumber industry. Before this, lumber was cut by whipsaws and transported down out of the mountains on donkeys. By 1940, however, five modern sawmills had been installed. All but one of these plants were burned by the occupying troops or dynamited by Greek resistance units. To replace these, UNRRA supplied five American portable sawmills, but because skilled labor and logging equipment have been lacking, lumber production is now less than one-half of that in the prewar years.

Of the 63 forest tree nurseries, at least two-thirds have been abandoned. Nearly all the equipment, tools, piping, and buildings were stolen or burned. Many of the sites were used as camp areas and two of the large nurseries near Athens, at Daphne and Goudi, were used as gasoline dumps. Other nurseries were planted to vegetables—food being more important to undernourished people than trees.

The end of the war brought no respite to these forests. With 23 percent of the homes, 98 percent of the freight cars, and all of the major rail and highway bridges destroyed, Greece has an unprecedented construction job. The village of Kalavrita in the Peleponesus symbolizes this problem. Nearly every home and public building, some 500 in all, were burned and dynamited during the occupation. The male population was killed and an attempt was made to burn the women and children. But in spite of this, reconstruction was soon under way.

More than two million feet of lumber is needed in that town alone. With little or no money available to buy lumber from the outside, requirements must come from the few local tracts of fir timber. The villagers, supplemented by new recruits, are cutting away with ax and whipsaw. Each day a string of donkeys laden with lumber can be seen winding its way down the mountain slopes toward Kalavrita.

Faced with this tremendous requirement for lumber in reconstruction, and with civil war sapping the resources of the country, the Greeks themselves continue to make heavy inroads on their limited forest capital. Director Christodoulopoulos has pointed out that "every Greek who requires lumber goes to the nearest forest, armed with an ax, and proceeds in the most unscientific manner to procure what he needs." For essential construction alone nearly a billion board feet of lumber are

Centuries of neglect. These slopes which once supported a thrifty stand of timber have been badly denuded by overgrazing and fuelwood cutting

F. G. Renner Photos

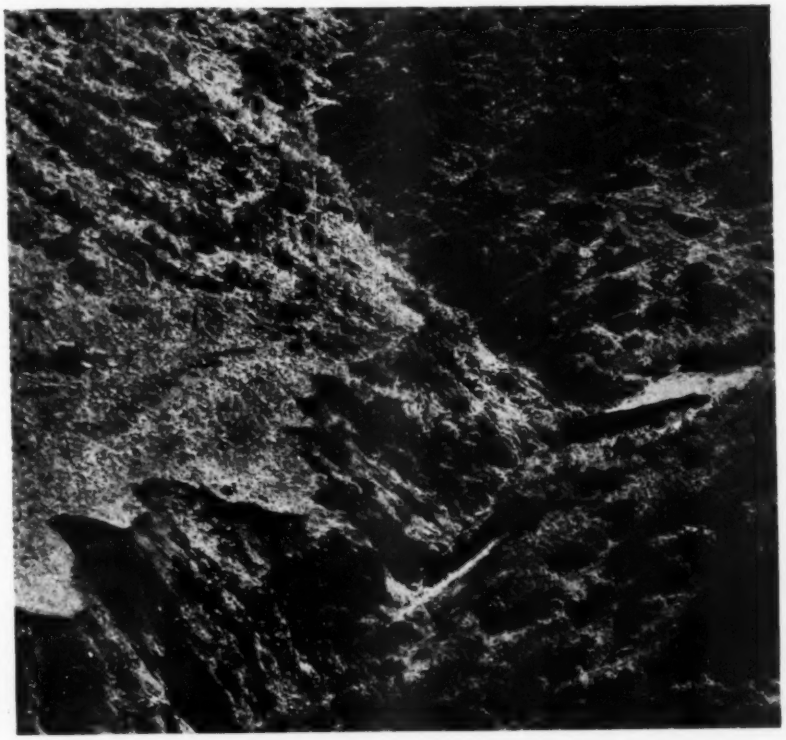
needed. In the prewar period the annual lumber production was not over 30 million feet.

Some 14 million goats and sheep, using the forest for forage, are effectively eliminating the urgently needed natural reproduction. Flying over almost any village one could estimate the population by the extent of the barren area around it. With nearly 70 percent of the forests owned by the state, with the ranks of the forest corps depleted by internal strife, and with civil war occupying the full time of the army, there is little hope that this help-yourself program will stop until order is restored.

Driving from Athens to Thebes and Lavadia in one afternoon, the writer counted 15 forest fires in a distance of about 100 miles. Some of these fires, he was told, had been burning for weeks and would stop only when they ran out of combustible material. There is practically no organized fire control. It is, in fact, unsafe to go into the mountains because of the fighting between the royalist and liberal groups. Forest fires are just another tool in guerilla warfare.

One district forester in Thessaly,

(*Turn to page* 231)



A closeup of what is happening on a large scale—one of the reasons for the acute economic situation in Greece today

They Love the Canyon

By OREN ARNOLD

FOREST folk out West love the Grand Canyon. They don't gush so much about its artistic grandeur—although it can live up to any brag—but they take it to their hearts for pure sociability.

"Yais, sir," I heard one Paul Bunyan type fellow say, in a lumber camp near Flagstaff, Arizona, "my old pappy found a pine tree in the canyon that was 640 feet tall. It was 70 feet thick, and mostly holler. Bears had chewed out a den in it three stories high, and 18 of 'em was bedded down in there for the winter. Bees had made a honeycomb in it bigger'n a railroad tank car."

He was, frankly, lying. But axmen are artists in many fields, and we love them for that. Two of his clan, handsome chaps in ear-flap caps, red plaid mackinaws, laced snow boots and such, rode a sled up to El Tovar Hotel on the canyon rim last November. I was there on business and stepped out to greet them.

"Gentlemen," I began, in my best dude manner, "can either of you tell me how the canyon originated?"

They stopped unloading logs to stare at me. "Ain't you honest heered?" one demanded. "Why, it originated when a Scotchman dropped a dime into a gopher hole."

"Thank you kindly," said I, and walked on, dead pan.

We understood each other. They suspected I had taken them. But then, they had tried to take me. We three discussed it later, around a little woods campfire.

"Never know who's pullin' who's laig up here," their spokesman grinned. "But that dime story generally goes over with an easterner. But sometimes I tell what that writer feller, name of Irvin Cobb, had to say. He figured the canyon was dug as a place to throw old razor blades."

The canyon is 250 miles long, 18 miles wide and a mile deep, and the truth is, it was dug by '49ers during their dramatic gold rush of the past century. They would have dug it plumb to the Pacific Ocean, as an inland water route across the desert, if the Civil War hadn't stopped them. I got the facts last fall from one of the men who helped, an historian called Tushtooth Ed Molloy. However—

Perhaps you've heard the one about the Scotchman dropping a dime in a gopher hole—here are other delightful and amusing yarns old-timers like to tell about the Grand Canyon of the Colorado

Greatest of all natural wonders is the Grand Canyon—250 miles long, eighteen miles wide and a mile deep

"We had help from the Navashovel Indians," he confessed. "They are cousins of the Navahos. They have web fingers, which is a joy for diggin'. We forest men would ax down the trees, and the Navahos and Navashovels would move the dirt. Genuwine co-operation, yep.

"But we had some trouble at times. Them Shovels could be ornery. I was ridin' down Skeleton Draw in the canyon one spring—1878, I think it was—when 30 or 40 of the devilish Shovels jumped out and started runnin' at me. I had a head start and done what I could to keep it. I had my rifle, no denyin', but I wasn't provided with time to use it. I just lit out. Pretty soon I seen it wasn't no use.

"Them fiendish Shovels can mighty nigh fly when they set about it. Them web hands of theirn sort of acts like wings or fins or somethin' in the air, and a civilized white man cain't do nothin' agin 'em. They was pushin' me closter and closter, demandin' of my scalp."

Mr. Molloy trembles in emotion at this juncture, so vivid is his memory of that hair-raising episode. The audience invariably is holding its breath in suspense. Somebody always speaks up to ask him how in the world he managed to escape 30 murderous Indians.

"Well, sir, I'll tell you. I run and run until I come to a ambush, and I clum right up into it and from there I shot down that whole gang.

"You hev heard tell of people bein' shot from ambush, no doubt?"

Members-in-good-standing of the Grand Canyon Chamber of Commerce do not as a rule stick to the exact truth in describing the climate of their homeland. There is the story of the Grand Canyon guide who departed this life and went to his just rewards.

Upon arrival there the devil was escorting him about Hades, showing him his new home and all the "works" there. During the course of the stroll the newcomer remarked that "it certainly is hot."

"Well, yes," the hospitable devil agreed. "But it's a clean sort of heat. You see, 115 degrees here is no worse than 80 in New York, because it's so much drier."

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FORESTS GO OVERSEAS

By JOHN B. WOODS

EARLY explorers found in North America many plants capable of yielding food or fiber. The Indians customarily gathered some of these gifts of nature; in fact, the more advanced tribes regularly cultivated certain crops, and some even practiced fertilization or irrigation or both. Yet our American aborigines of a few centuries back apparently concerned themselves little with plant improvement, such tampering with the unknown being widely accepted as forbidden.

Today our agricultural scientists and those of other nations strive unceasingly to develop better strains of all the farm crop species, and there is constant interchange of seeds among countries. It is not unreasonable to state that American farmers are indebted to other lands for most of the crops they grow. And, of course, the obligation extends both ways, since many strains developed by American scientists from both native and introduced species are planted by farmers overseas.

K. C. Wise

Americans also are supplying the seeds of timber trees to foresters in Europe and other parts of the world. And in this exchange the foreigners obtain considerably more than they supply. The reasons are interesting. Undoubtedly the North American continent possesses the world's most valuable assortment of tree species, being particularly rich in conifers, the kinds of wood most noted for their easy workability, rapid growth and all-round usefulness. So, increasingly, our trees are assuming prominence in the planted forests of other countries by reason of suiting a variety of conditions.

By the fortunate geological accident of having its principal mountain ranges running in a north-south direction, this continent came through the several glacial periods with relatively little loss by extinction of plant species. Each time the ice sheet advanced southward, plant life retreated safely before it, and eventually, as the ice melted from returning warmth, the plants spread northward again along the valleys.

Europe, with its lofty east-west uplifts standing athwart the path of advancing cold, was less fortunate. When human beings arrived on the scene, there was only a handful of tree species surviving, probably not more than a dozen of them conifers. Consequently, Europeans, particularly northern Europeans, have always suffered the disadvantage of having

Monterey pine of our West Coast is planted extensively in Australia and New Zealand

few kinds of native trees with which to produce the wood their countries require. So they have been borrowers on the grand scale from other more fortunate continents. This has been going on for a long time, interrupted by occasional wars. Now, following World War II, there is a notable resumption of such commerce.

Because trees grow and mature slowly, adaptation and improvement by selection and cross-breeding has been confined rather closely to those species which yield edible or otherwise highly valuable fruits or nuts. While plant breeding has been begun with various timber trees, the results are not as yet widely useful. The growing of wood has been and still is a matter of planting seeds collected from natural or man-grown stands and hoping for the best. Of course, when he can do so, the forester usually seeks out parent trees that have characteristics desired in the new forest, but most foresters, wishing to renew the vigor of their woods or to introduce new species, simply look to other localities for "new blood." And this method appears to have worked quite well, particularly where American trees have been called upon for aid.

Every country in the Old World boasts thriving plantations of trees which had their origins in North America. Forestry students who went to Germany 40 years ago were shown a splendid grove of tall white pines in the Rhineland, grown from seeds gathered in New Jersey and Pennsylvania by Hessian soldiers who fought for hire in our Revolution. A later planting of lowland white fir from our Pacific Northwest, was to be found in the Tiergarten at Copenhagen, Denmark. It was notable for the tremendous size of the trees.

Dense stands of Sitka spruce clothe the slopes about Loch Goil and Loch Long, in southwestern Scotland. Magnificent Douglasfirs stand in close ranks beside the Wolfgang forestry headquarters near Frankfort on the Main. These and other North American species compose hundreds of plantations, ranging in age from a few years to more than a century, scattered throughout the British Isles and in all the provinces of old Germany.

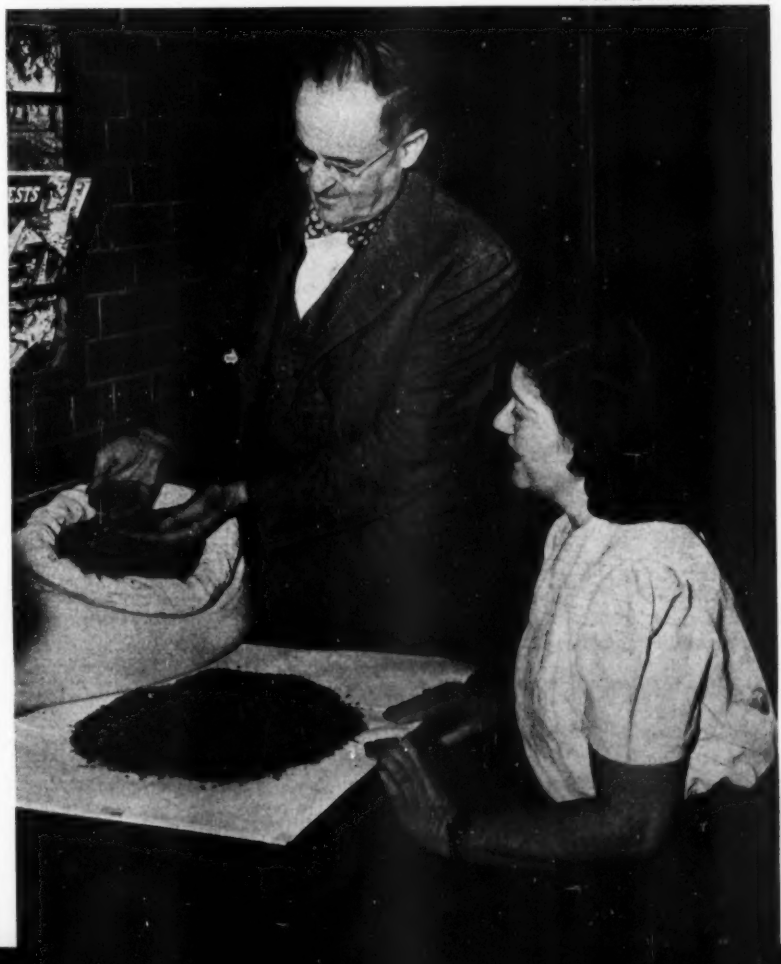
Hollanders have been lining the dikes and headlands which reclaim much of the Zuider Zee with Douglasfir, Sitka spruce and lowland white fir. The French have planted these species upon their Massif Centrale. In Czechoslovakia, Poland, Belgium, Italy, Austria, Hungary and Switzerland, many American species have been tried successfully. Hardier strains of our trees have been planted, to a limited extent, in Scandinavia. It will be recalled that following World War I, several tons of American tree seeds were sent as gifts to England and to European countries. Undoubtedly many new forests sprang from such New World generosity. England in particular adopted a large-scale, long-range reforestation program that has been carried forward vigorously. These considerable donations appear to have stimulated rather than retarded the flow of strictly commercial exports of seeds.

Europe is not alone in drawing heavily upon America for new trees. Several countries of the Southern Hemisphere look to us for conifers because, for one reason or another, their softwoods are few and scattered. Eucalypts, kauri and auracaria are noble tree families, with many species altogether and many varied uses; yet they are not as suitable for everyday construction and packaging as are American conifers. Thus we find these far-away countries planting our trees, along with a few from Europe and Asia.

Captains of Yankee clipper ships carried from the vicinity of Monterey Bay to Sydney and Melbourne the seeds of the big, rough pines which flourish along that section of the California coast. Their friends "down under" planted the seeds in their gardens and before long these exotic trees, because of their phenomenal growth, were commanding the attention of Australian foresters. Eventually the Monterey pine became the most planted species in both Australia and New Zealand. Visitors to the latter country can drive through hundreds of thousands of acres of such plantations. Thus the weed tree of

The author examining Douglasfir seed ready for shipment to Europe. Postwar demand is great for seed of many American tree species

Buckingham Studio, Inc.



California, so called because no American thought much of its potentialities for producing usable lumber, became the first choice of tree planters in the South Pacific area. They even gave it a new name, *Pinus insignis,* the distinctive or remarkable pine, instead of *Pinus radiata,* the widespreading or exceedingly limby pine.

Foresters in those far countries are not hidebound, they try all manner of new trees. Among the most used today, besides the Monterey pine are Douglasfir, coast redwood, ponderosa and sugar pine of the West and the four principal southern pines. Such a range of selection is reasonable, for Australia and New Zealand are countries with widely varying climate.

Sometimes these quests for new trees to plant cause their technical men to travel afar. In late summer of 1927, a young forester from New Zealand turned up at the newly established forestry headquarters of a lumber company in Ryderwood, Washington. Greatly impressed by the forests of the Cascades he made an unusual request, to purchase for his company at least 1,000 pounds of fresh Douglasfir seeds.

A day or two earlier a Portland newspaper had carried a story of frenzied cone picking in a northern Oregon foothills hamlet. A bumper crop of Douglasfir cones near there had attracted the attention of a large seed house, whose buyers had stirred the "stump ranchers" to action by offering $1.25 for each sack of sound green cones, delivered in town. Recalling this news, the Ryderwood foresters decided to try to get some seeds for the stranger. There was also the consideration that they could use a couple of hundred pounds in their own forest nursery.

It was not difficult to move in upon the big-time cone buyers. In fact, the latter welcomed the newcomers, for cones were pouring in so fast that there was a danger that stopping the flow might become a problem. In less than three days the men from Ryderwood found themselves in possession of three freight carloads of green cones and were headed for home. They still had to improvise drying and cleaning equipment, but this was duly accomplished, and in late autumn the New Zealander's seed supply was loaded in a ship.

The local foresters, thus more or less accidentally projected into a novel business, have found it interesting and worthwhile to continue to collect and distribute this extraordinary product of the great Northwest timber trees. And, of course, they are not alone in this business. At least two large American tree seed houses have been active for more than half a century. Even during the recent war some trade was carried on with foreign countries. Probably a score of other collectors and dealers located in various parts of the United States and Canada have been producing seeds of southern and eastern tree species as well as those of the Pacific Northwest, for as long as 20 years. Many others have functioned briefly and spasmodically.

Some of these tree seed collectors also harvest and process "botanicals," meaning fruit, leaves, bark, or other parts of plants used in decoration, medicine, cookery, distilling and for other purposes. Both fields of activity are characterized by feast and famines, or alternating periods of good and poor demand. It is worth noting that a sharp distinction exists between dealers in farm and garden seeds and collectors of forest seeds and botanicals; only rarely does a firm attempt to cover both fields. One of the reasons for this may be that collecting cones from trees and processing fruits and other parts of woodland plants smacks of pioneering. Most of the people who work at such tasks are wilderness folk.

There is a woman who lives at the edge of a great forest area in western Washington, who has been a collector of such products for many years. Last winter her picture appeared in dailies all over America along with a news story about her activities, particularly about her reliance upon squirrels to gather the cones from which she extracted seed. The squirrels would cut the cones from the trees and store them in holes under the roots, whereupon she and her helpers would rob the caches. Such a system is productive of excellent seeds, since the squirrels are good judges of sound and well filled cones and never cut any other kind.

In her case, the system was productive as well of a great deal of criticism. Letters came from all over the United States. One critic wrote, "I think you are the meanest woman in the world!" Another gave rein to her imagination, saying, "I'll bet you wear a lovely fur coat, made from the skins of the poor little squirrels you have starved to death." Actually, while the method appears ruthless, it is true that in most years the rodents, which work by instinct and keep no inventory records, gather far more cones than they can use.

It is interesting to sit upon a windfallen log in the forest through a warm autumn afternoon and watch the little animals whisk about in the treetops selecting good cones, which can be picked up from the ground without great effort and sold for a dollar a bushel. Squirrel robbing is highly popular among children and grown-ups in many forest areas of this country. Indians in British Columbia and our own Pacific Coast region always allow the rodents to help them turn an honest dollar with cones of the Douglasfir and the western pines. The red men, having used this method of gathering edible nuts since time immemorial, are careful to leave enough seed in storage to keep their four-footed employees through the winter, so they will be on hand to work another season.

Some trees, such as the true firs, mature their cones at their very tops, and when these ripen the cones fall apart so that the seeds are scattered about. Obviously, seeds of such species must be obtained by picking the green cones while they are still intact. This means climbing trees, always a sticky task because of oozing pitch. In the case of the taller species, such as noble and Shasta red fir, it is a laborious and dangerous job, demanding the service of skilled "high-climbers" from the logging camps.

Once there was an expert marksman in northern California, who collected cones from the gigantic sugar pines, which dangle at the tips of branches .80 to 150 feet above ground, by breaking the stems cleanly with slugs from a .22 rifle. A less costly method is to follow the tree fallers in a logging operation during the autumn. Yet the woodsman who knows where the scattered sugar pines are standing probably will be even more successful at robbing the sleek California squirrels.

Sitka spruce occurs along the tidal estuaries of western Oregon, Washington and British Columbia. Here, too, there are squirrels to store the seed-filled cones in holes under roots a bit above normal tide level, and here their caches can be robbed at any time from October to New Year. It is wise for pickers to work in pairs, for sometimes a person finds it difficult to wriggle out of a root infested hole. The fate of one cone-picker's wife who went out alone in the late fall of 1941 is still a topic for mystified conjecture around Willapa Bay.

There are several tree species

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A STATEMENT OF ACTION
BY THE AMERICAN FORESTRY ASSOCIATION

Board of Directors Announces Plan to Activate Its Program for American Forestry

The Board of Directors of The American Forestry Association, meeting in Washington, D. C., April 18, issued the following statement on steps it will take to translate the Association's Program for American Forestry into action:

The members of The American Forestry Association by an overwhelming vote have adopted a Program for American Forestry. The Program is one which should be actively supported by any and all agencies, organizations and individuals having an interest or responsibility directly or indirectly in conserving the forest resource. The Program calls for organized leadership by the Association in developing public support through all appropriate means, including the creation of an advisory group to be known as the American Forestry Council.

The Board of Directors of the Association herewith announces the steps it will now take to translate this Program into action. It proposes no new organization. It will work with and through existing public and private agencies and associations to:

1. Develop an ever increasing appreciation on the part of the general public of the importance of good forestry to individual and general welfare. Progressive accomplishment of the long-range objectives of the Program requires the support and understanding of the general public. This is to be undertaken through a broad educational approach.

2. Obtain increased services designed to inform the millions of owners of small and large areas of forest lands throughout the nation as to their opportunities to utilize their properties for the continuous and profitable growing of trees. Such activities include on-the-ground deminstrations and informational and technical assistance to forest owners in the development of better methods of forest management. These services are logical activities of county, state and federal agencies and organized private endeavor.

3. Encourage state and local governments, public and private agencies, to take greater responsibility and leadership in dealing constructively with their own forest and conservation conditions and needs, including protection, reforestation and harvesting methods adequate to keep forest lands productive.

4. Serve as a clearing house of information relating to the various activities carried on by the many groups engaged in work in line with the objectives of this Program. This will make for better integration and coordination of forces.

5. Enlist interest, participation and cooperation in advancing the Program among all conservation, educational, civic, youth, farm, labor, financial, industrial and other groups and organizations.

DEFINITE STEPS TO BE TAKEN

There are numerous agencies now engaged in local, state and national activities of a forest educational nature. They provide a very substantial foundation on which to build the larger campaign called for (a) by enlisting support and action from other groups and organizations of which there are hundreds throughout the states, and (b) by supplying suitable educational material now urgently needed on all levels, local, state and national.

The Association will augment its staff to service the Program by aiding in the development of cooperative action on the part of as many individuals, groups, agencies and organizations as it may be possible to enlist. Special emphasis will be placed on providing assistance on the state level.

It will organize the American Forestry Council as called for by Program proposal #30 through which interested individuals, groups, organizations and agencies will cooperate actively and collectively in translating the Program for American Forestry into concerted action. Members of the Council will be appointed by the Board of Directors to serve for specific terms and will be selected from leaders in the different fields of forest interest and public affairs who are in accord with the objectives of the Program. The functions of the Council will be advisory to the Board of Directors of The American Forestry Association. In addition, the Council should furnish the primary means of coordination and should serve as an effective clearing-house for the interchange of information and action.

Big Bass LIKE LITTLE BUGS

By HARRY BOTSFORD

Many years ago, on a little lake in Pennsylvania, I had reached the end of a fruitless and fishless day of bait casting. I had been on the lake at the crack of dawn. I had been casting steadily all of the day, and I had been rewarded with only one half-hearted strike. I had tried every lure in the big box I carried and every trick in the bag.

It was nearly dusk and I was tired and discouraged. A boat slid silently around the tip of the lake and I watched it curiously while I paused to light my pipe. The man in the boat was flycasting. Well, I thought bitterly, he was a wise angler. At least he would be having some fun catching pan fish. I watched him make a long, smooth, effortless cast and noted the tiny splash where the lure dropped on the surface. Suddenly the water boiled. An accidental strike by a bass, I assumed, a most fortunate affair. I watched the angler play the fish easily and competently. Eventually he brought in the bass, netted him. Then, to my astonishment, he released the bass and started to cast again.

My interest quickened. I tagged the fly fisherman for a half hour, saw him hook and release three more good-size bass in that interval. When he tied up his boat I saw why he had released his bass—he had already caught his limit. They were a string of beauties, averaging better than two and a half pounds each.

I introduced myself to the fortunate angler, a somewhat elderly and gregarious soul. He insisted on giving me a pair of his bass and invited me to come to his cabin and talk fishing, an invitation I accepted eagerly. "I want to tell you about bass bugs," he said.

That night, in front of a friendly log fire, he did tell me about bass bugs, for which I have always been grateful. He had an amazing collection of them. Some he had made, a few he had bought. He was enthusiastic about them, urged me to give them a trial.

Fortunately, I had a good fly rod in my cabin. I used it only for sunnies, blue gills and crappie bass, with small trout flies. I had always been skeptical about the use of larger lures, but what I had witnessed and the contagious enthusiasm of my newly-made friend convinced me that the little bugs had big possibilities. When I left, my generous friend had filled me with advice and he had also given me a dozen of his bass bugs.

The next morning was cold and gray. There had been a light frost and the air was crisp as I pushed out in my boat. The water was calm. I was using a nine-foot rod, a double-tapered line and a six-foot level leader. I remembered what my friend had told me, and tied on a medium-size black, white and brown bug.

I made a few practice casts, getting the feel of the air resistance of the lure, entirely different from that experienced with a small dry fly. I soon got the hang of it, achieved fair distance and an accuracy that was rather spotty.

I managed to place one cast at the edge of a patch of lily pads, close to shore. The tiny bug splashed lightly and I let it stay there momentarily. Then I twitched the tip of the rod slightly. The lure wriggled and the water exploded. I struck savagely—and got nothing. Then I remembered. My friend had told me that this would happen. "Sometimes, if the water is calm, the bass jumps close to the bug, evidently with the idea of splashing water on it so that it can't

When your luck is running low, put aside the bait rod and try flycasting with little bugs — it'll pay off

fly again. Then, after a small wait, he leisurely gobbles it. Don't strike on the first rise, unless you are sure you have the bass hooked!"

I was furious with myself. I waited a few minutes and again cast to the lily pads. On my fifth cast, the bass loudly and visibly surfaced. I called on my reserves of caution and didn't strike—but it was a pretty tense interval. Then I gently and expectantly twitched the rod tip and the bug moved ever so slightly. This time Mr. Bass struck and he meant business. He wasn't a very big chap, but he did go a good two pounds and he gave me an exciting battle before I netted him. him.

That's how I started using the little bugs. I've never stopped, nor have I ever returned to using a bait rod. Perhaps I have not caught as many big bass as I did when I used a bait rod and heavy lures. But I am sure that I have caught more bass and had better sport.

The gay, cocky, provocative little bass bug is a productive bass-getter, in all weathers, at all times of the year. In lake fishing I prefer to use dark-colored flies on bright days, reversing the process on dark days. Usually, if the water is quiet, I cast to weed beds and let the lure lie. This is followed by a twitch of the rod tip, just enough to make the bug dance and cavort enticingly. It usually pays to let the bug drop gently; if possible drop it on a lily pad and then pop it gently into the water. Again, I have had unusual luck by slapping the bug down with a good healthy splash. The noise sometimes serves as a sort of a dinner call to bass in the vicinity.

If the lake is rough or choppy, a different technique is necessary. In such cases I find it productive to keep the bug moving—not too fast, but in a steady progression of erratic jerks that gives the illusion that the bug is struggling to get into the air again. In such a circumstance, the bass do not rise and try to splash the bug. He doesn't fool. If he is really hungry, he doesn't hesitate. He grabs —and the fight is on.

Don Carpenter

In stream fishing the author has found bass bugs highly productive when he uses dull whites, grays, browns and blacks

Stream fishing is different. Personally, I've never had much luck with small mouth when I used the larger bugs. Possibly the fault has been mine. I still think the smaller bugs are the more productive. I cast precisely as if I were out for trout. Bass, I have found, have about the same feeding habits as trout. They like to lie in fast water and wait for it to bring them suitable food. They habitually lurk in the shadows of a sunken log or rock, where they can dash out and gobble anything that looks tasty and appetizing.

Somehow I always imagine that the small mouth has keener eyes and that he's smarter, more alert than the big mouth. That's why I use smaller bugs, keep them moving so fast that he can't note the deception. My theory may be completely off-center. I can't support it with evidence aside from my own experience.

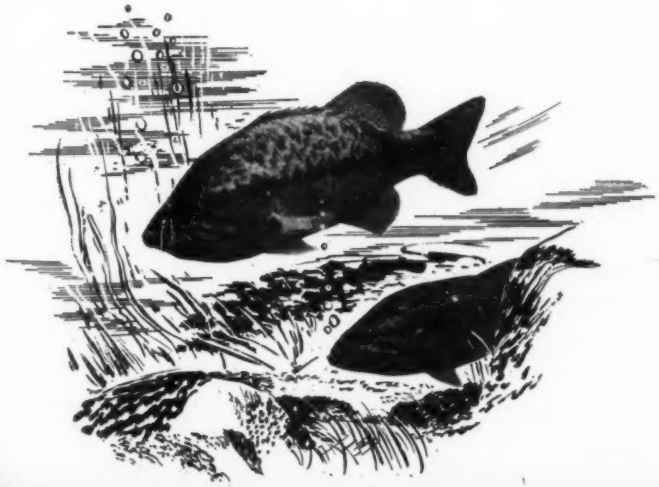
After years of fishing, my choice of bugs has narrowed to a round dozen. Every year I make and buy new ones. I have a lot of fun experimenting with them. But a dozen is sufficient; I use different sizes and colors divided equally between dark and light. Brilliant colors I have seldom found to be successful. I use red, for example, with great restraint. Dull whites, sober grays, browns and blacks, in various combinations, have my preference.

As to equipment, I prefer a nine to nine and a half-foot fly rod, a very good one too. I never use an automatic reel. I like to handle the spare line with my left hand; it's part of the fun. I insist on a good double-tapered line, a six- to seven-foot level leader. The combination helps you get distance and be more accurate.

I have had great joy in using the little bugs. Many of my friends, once settled dry fly purists who had insisted that trout were the only proper fish for a fly rod, have become converts and they go whooping up and down the land shouting the praise of the little bugs and big bass.

Using the little bugs calls for real fly casting skill. You can never afford to become careless. Accuracy is indicated, and it is not too easy to attain, especially when you are fighting a wind. However, with practice you can become accurate—and you will be able to get distance, too.

(*Turn to page* 236)



PRESIDENT CALLS FIRE PREVENTION CONFERENCE

THE President's Conference on Fire Prevention, to be held in Washington, May 6, 7 and 8, will signal the beginning of a nationwide drive to drastically reduce fire losses in 1947. Marking the first organized national effort ever made to combat the fire menace, the conference will have as its main objectives more vigorous emphasis to the public "of the ever-present danger of fire to human life and material resources" and to intensify "the work of fire safety in every community."

To gather data for the conference, the coordinating committee appointed by the President has been conducting a nationwide survey of fires, their causes and fire losses over the past five years. Work of the conference is being done by six committees—fire prevention education, fire-fighting services, laws and law enforcement, organized public support, building construction and research. These committees' reports will form the basis for the conference work. Major General Philip B. Fleming, Federal Works Administrator and Administrator of the Office of Temporary Controls, is serving as general chairman of the conference.

Although the weight of the conference will be directed toward urban and industrial problems, forest fire prevention and protection will have an important place in the proceedings. Representatives from numerous forestry agencies are serving on the committees appointed to assemble data and make recommendations, among them Ovid Butler, executive director of The American Forestry Association.

Their responsibility will be to recommend to the conference action needed to meet the high risk which forests constitute throughout the country—a risk underscored by the fact that an average of 175 thousand forest fires occur yearly, destroying productive growth, property and resources on 25 million acres. Covering one-third of the land area of the nation, forests—to indicate the magnitude of the risk—constitute a natural resource upon which cities, towns and rural communities depend for maintenance of supplies of raw wood for industry and employment; water essential for home and municipal uses, generation of electricity and irrigation for the growing of crops; opportunities for outdoor travel and recreation; and taxable revenue for local and state governments, including highways and schools.

The great need for prevention is emphasized by the fact that nine out of ten of these 175 thousand forest fires are man-caused due in large measure to human carelessness and ignorance.

Out of the President's conference, it is believed, will develop a national action committee to correlate the efforts of all organizations interested in fire prevention and to implement the recommendations of the conference. It has been further proposed that state-wide committees be set up following fire safety conferences to be called by each of the 48 governors.

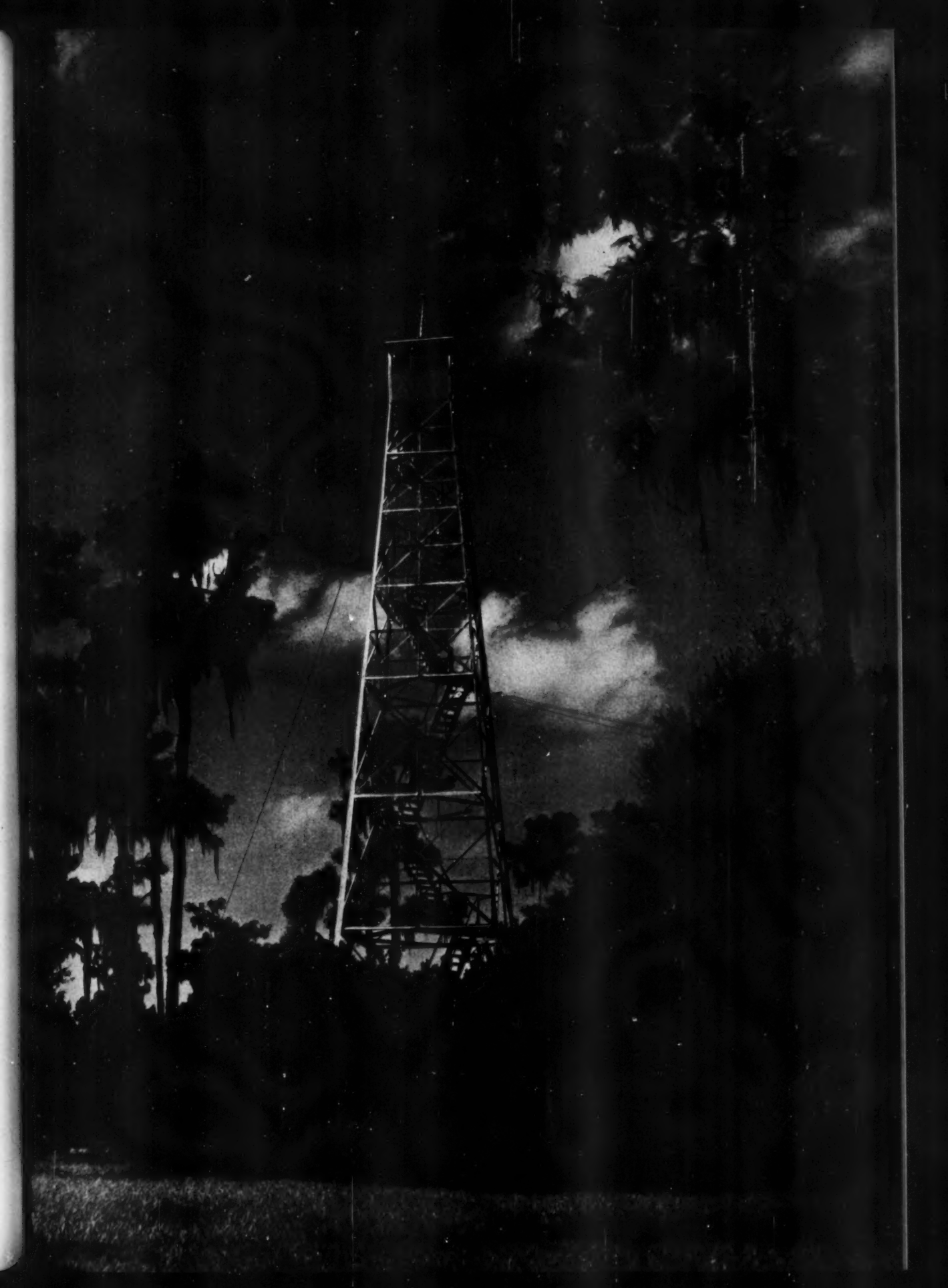
While conference delegates are deliberating these and other matters, reports indicate that the 1947 Cooperative Forest Fire Prevention Campaign sponsored by state forestry organizations and the U. S. Forest Service, is well under way. Featuring the "Three Bears" poster reproduced at the top of this page, which along with others was prepared by the Advertising Council, Inc., millions of posters, bookmarks, car cards, blotters, stamps and newsads are being distributed throughout the country. Along with them are being released radio scripts and platters, newspaper mats and movie trailers—animated color shorts for commercial theater distribution.

In addition to the "Three Bears" design, wide distribution is being given a Red Cross poster "Forest Fires Destroy —Lives, Homes, Wildlife, Timber, Crops," and the Smokey Bear poster, "Burned Timber Builds No Homes" so popular in 1946. Sectionalized material includes a western range fire "Grass Makes Wool, Meat, Leather—Prevent Range Fires," a southern grazing poster "Woods Pasture, Poor Beef—Grass Pasture, Good Beef," and a western "Keep 'Em Green" poster, reading "Your Care Will Help Prevent Forest Fires."

To participate in the 1947 Cooperative Forest Fire Prevention Campaign—and every citizen is urged to do so—address Clint Davis, campaign director, U. S. Forest Service, Washington, D. C., or your state forester.

On guard—Hillsborough fire lookout, Florida

Florida Forest Service



LUMBER FROM LOGGING LEFTOVERS

By ARTHUR W. PRIAULX

UP IN the green-timbered hills of Oregon's Linn County, three tough old loggers and a sawmill man are busy these days cheating several billion bugs out of a mighty juicy feast.

Cheating bugs is a sideline and end result of one of the West's most intriguing ventures in turning logging leftovers into lumber. Observers, who incidentally are keeping the road well worn up Roaring River to view this experiment, feel this re-logging show, coupled with an on-the-spot manufacture of lumber, may turn out to be the true elixir and permanent pattern for salvaging so-called "waste material" from old growth harvest areas.

Out in the Douglasfir region of western Oregon and Washington, the business of re-logging areas recently harvested has mushroomed in half a decade into an important industry. At last count more than 400 such operations were bringing millions of feet daily of small logs, chunks, tops and partly decayed trees to sawmills and pulp plants.

Scores of small portable mills, some haywire outfits built from car rear ends, were taken into the woods to harvest these logging leftovers. Nowhere was there uniformity, or a standard portable sawmill, or standard procedure—but everywhere there was a determination to utilize more of the raw material of the forests.

Into this picture last fall stepped four Linn County men who were willing to invest $50,000 in a yardstick show—an unheard of outlay for a portable mill and re-logging operation. The partners wanted a new portable sawmill devoid of makeshifts and, being experienced woodsmen, they designed the plant themselves. They put the accent on ample power and stoutness in working parts. It was made to fit the raw material and terrain.

The four partners who figure their $50,000 investment a long-range proposition and not a quick-profit effort are F. L. Thompson, A. M. Hendrickson, W. M. Chambers and Orville Wiseman. They call the company the Re-Logging Forest Products Company.

From every acre of Roaring River Logging Company's three-year-old cutover land this firm is taking off 10,000 feet of lumber, enough to build an average American home. Equally important, the partners feel, is the contribution their operation is making toward an industry-wide standard woods procedure for re-logging and milling woods leftovers.

As superintendent of Roaring River Logging Company and past president of Willamette Valley Logging Conference, Thompson is a long-time

Enough lumber for an average American home is being salvaged from each acre of logging waste in Oregon's Linn County

crusader for sustained yield through tree-farming principles. Hendrickson is Roaring River's assistant logging superintendent, and combines woods wisdom with a deep belief in utilization, as does Chambers, office manager. Wiseman contributes the sawmill man's viewpoint and "know-how" to the firm. He is an established operator in the Albany-Crabtree sector.

Under their direction the re-logging plant was custom built and assembled on sleds to ride on logging trucks. Completed late last fall, the partners selected their first setting in a canyon at about 2,800 feet elevation in a region made famous by "Believe-It-Or-Not" Ripley, who made the claim that here is the only spot in America where a river empties into a creek. It is a fact, local geographers aver with pride, that Roaring River does pour its waters into Crabtree Creek. But that's quite a piece below the re-logging mill which is 28 miles east of Albany.

The husky little giant sawmill is a Diesel-electric plant with 48-inch double circular saws with 40-inch opening. Its 20-foot, three block, chain-and-sprocket driven carriage can take a 24-foot log through the saws. Headrig is powered with its own 165-horsepower twin cycle Diesel. Every other operation in the mill is run by electric motors.

Edger, trimmer, carriage, log lift, log stop and turner, transfers, green chain, sawdust elevator—all are electrically driven. Rolls turn on ball bearings throughout.

The mill is mounted on two main sleds of 40-inch logs, 60 feet long, adzed down to 30 inches and put together with the perfect symmetry of precision-built machines. Green chain is on a smaller sled, so are elevated sawdust bin and fuel tanks.

Hendrickson, who knows about such matters, says the mill can be moved and set up again in three and a half days. The boys had a chance to test that schedule when they moved down this winter to lower ground.

In two operational phases where mobile mills usually show weakness —power and log storage—this plant does not suffer. The untroubled purr of the Diesels, no matter what the burden, bespeak energy sufficient for any requirement. And in the dozer-built pond, fed by a brawling creek of the Roaring River system, there is space for a two-day log supply.

Gravity is put to good use at the end of the production line. Green-chain off-bearing is down, yet there is room beneath the stacks for trucks to back under. From there the lumber rolls downhill to re-milling plants in the valley. Only sawdust goes up, in a conveyor chute, to a storage bin, from which a clean-up truck can draw loads.

Across the pond stands a "Blue Babe" with its chain saw. Logs come in from 2,500 feet out, downhill, ground-skidded by tractor, in full tree length. The "Babe" pulls them up through the bucking chute and cuts them into convenient lengths.

Now to production. Designed for 30,000 feet a day, the plant is slowly being "broken in" and Foreman Oscar Johnson is confident it will meet designers' figures, although at the start 20,000 with a green crew and stiff machinery was average. That's still enough for two much-needed homes.

Admitting they are "not cutting any fat hog by way of man-hour production," the partners say they are well above industry average even with small logs, and this is a record considering the large amount of defect and waste handled. There are 18 men on the payroll, four in the woods, 14 in the mill, including the foreman. As larger logs are milled the average will increase, they believe.

Log selection in the woods has been necessary, the partners find, for there is a limit to the size of log that can be processed profitably, even in a plant right in the woods. Here is an unofficial standard for woods crewmen: don't bring in a log with more than 50 percent defect; don't buck out defects, bring the long logs in and the defect will come out in sawing; bring in anything that will square up a four-inch cant.

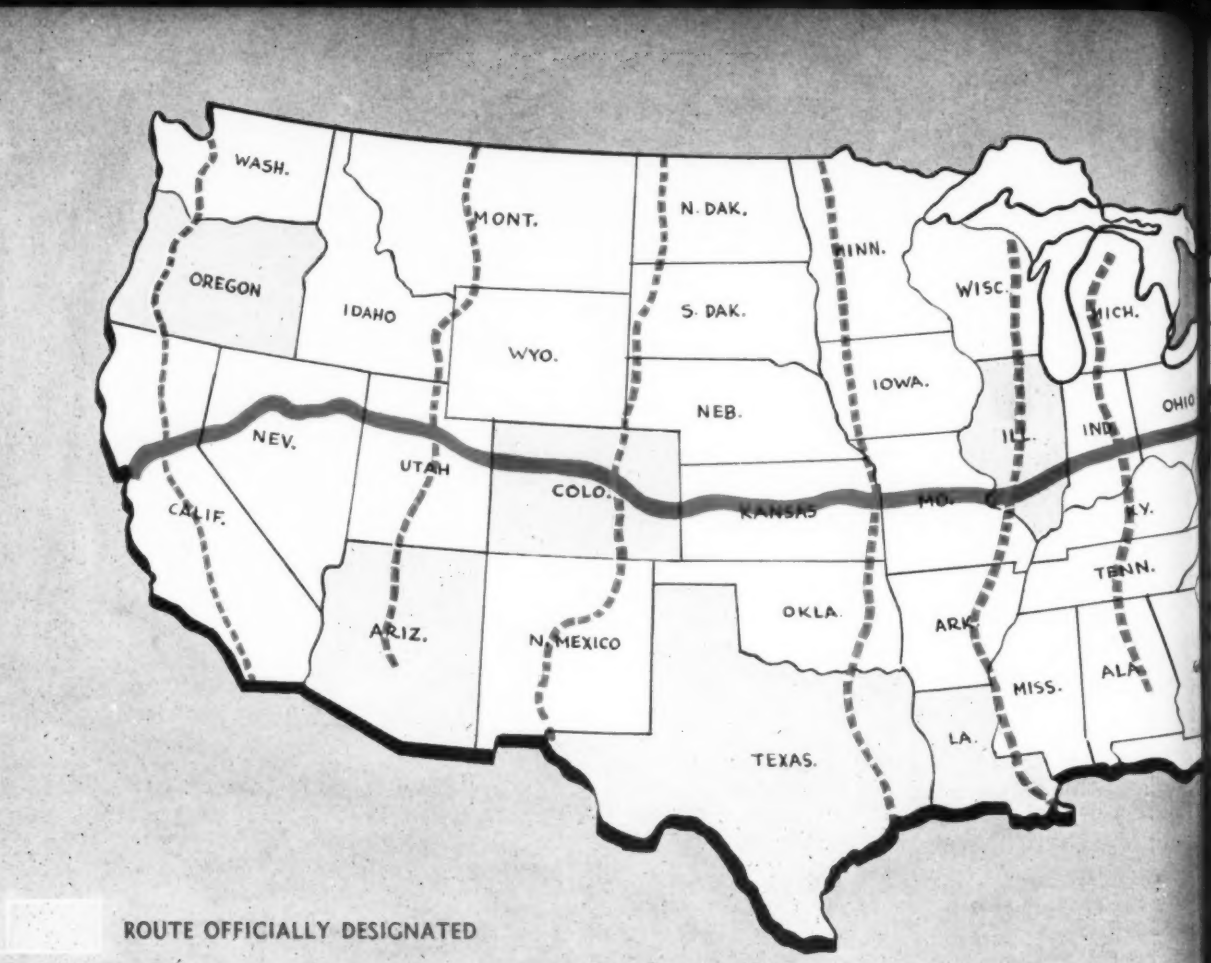
Despite this relative choosiness of the leftovers the operation is recovering a good 10,000 feet an acre, including all species. Cleanup is mighty good, down to about eight-inch tops. Primary loggers did an excellent job of recovery so there are no peeler logs in the leftovers, but some small chunks will go to 36 inches in diameter. Much cedar is coming in and this may have to be segregated for special outlets. All cutting is done to one- and two-inch sizes.

On the first 400-acre cutover area re-logged, the recovery average held very constant and some four million

(*Turn to page* 240)

Chunks, partly decayed trees, small logs and tops—fire hazards—are the raw material for this new, rapidly growing forest industry

Leonard Delano



PROPOSED BLUE STAR MEMORIAL HIGHWAY AND NORTH-SOUTH ROUTES

BLUE STAR HIGHWAY

Maine 1, New Hampshire 1, Massachusetts 1, Rhode Island 1, Connecticut 1, New York 1, New Jersey 1 and 22, Pennsylvania 22, West Virginia 22, Ohio 22 and 40, Indiana 40, Illinois 40, Missouri 40, Kansas 40, Colorado 40, Utah 40, Nevada 40 and California 40.

BLUE STAR CONNECTING ROUTES

Vermont 4, New York 4, New Jersey 9 and 22, Pennsylvania 22, 611 and 202, Delaware 202 and 1, Maryland 1, District of Columbia 1, Virginia 1, North Carolina 1, South Carolina 1, Georgia 1 and Florida 1.

Michigan 31, Indiana 31, Kentucky 31, Tennessee 31 and Alabama 31.

Wisconsin 51, Illinois 51 and 66, Missouri 66 and 67, Arkansas 67 and 65, Louisiana 65 and Mississippi 65.

Minnesota 75, Iowa 75, Nebraska 75, Kansas 75, Oklahoma 75 and Texas 75.

North Dakota 85, South Dakota 85, Wyoming 85, Colorado 85 and New Mexico 85.

Montana 191, Idaho 191 and 91, Utah 91 and 89 and Arizona 89.

Washington 99, Oregon 99 and California 99.

BLUE STAR MEMORIAL

Coast-to-coast Blue Star Highway System, a Living Memorial to Veterans of World War II, is Making Good Progress

HIGHWAY beautification as a living memorial to the men and women who served in World War II is making progress on a national scale. The Blue Star Memorial Highway System, initiated by the National Coucil of State Garden Clubs with the cooperation of state highway departments, has been officially recognized by legislative or other action in nine states—Alabama, Colorado, Illinois, Louisiana, New Jersey, Oregon, Rhode Island, Texas and West Virginia. Seventeen other states have legislation in preparation. Ultimately, it is anticipated, all states will memorialize a major highway for inclusion in the system, which has been established as a coast-to-coast memorial with a series of connecting north-south routes, as indicated on map on the opposite page.

New Jersey, where the Blue Star idea was conceived in 1944, has completed a naturalistic planting of flowering dogwood along U. S. Route 22, between Mountainside and North Plainfield—a tree for every New Jersey member of the armed services. It is known as the Blue Star Drive.

However, the Blue Star System is not conceived as a continuous planting. Each state will establish its own preferred type of living memorial, utilizing native materials in the way best suited to its own environment. Roadsides might be planted to trees or shrubs; sylvan dells may be reserved for recreational use; memorial forests might be established; areas may be set aside for horticultural study; there may be bird sanctuaries. While development of the whole network would be ideal, it is not by any means anticipated that extensive or continuous roadside improvement programs will be undertaken by all states.

According to Mrs. Vance R. Hood of New Jersey, chairman of Living Memorials for the National Council, the purpose of the sponsors is not to foster uninterrupted roadside plantings. "Rather do we hope that it will serve as a focus for garden club memorial activities at the state level. Each state should establish its own preferred type of living memorial."

The immediate objective of the National Council is to have specified routes designated as part of the Blue Star System. This is accomplished by joint resolutions of state legislatures or by administrative action of state highway departments. Beautification or improvement projects are undertaken jointly by the sponsoring garden club, which organizes the project and provides trees and other planting materials, and the highway department which assumes responsibility for planting and maintenance.

The Blue Star memorial idea was conceived during the war by the Garden Club of New Jersey which sponsored and raised funds for the planting of thousands of dogwood trees along a six-mile stretch of the state's now famous Blue Star Drive. Later the National Council of State Garden Clubs proposed a transcontinental extension of the idea, and as the plan developed a series of north-south connecting routes were included so that every state would be represented in the system.

KNOWING YOUR TREES

ATLANTIC WHITECEDAR

Chaemacyparis thyoides (L.)
Britton, Sterns & Poggenberg

By WARREN D. BRUSH

Of all the names given to trees and woods probably the term "cedar" is the most confusing. Originally applied to the genus *Cedrus*, it has been used for many kinds of trees. For example, the Spanish cedar (*Cedrela odorata*) is so called because of the aromatic odor of the wood. "Whitecedar" is used as one word to indicate that it is not a true cedar. Atlantic whitecedar is also commonly called southern white cedar, swamp cedar, coast white cedar, post cedar, and juniper.

U. S. Forest Service

In the South the Atlantic Whitecedar attains a height of from 70 to 100 feet, but is somewhat smaller in the North

Atlantic whitecedar is a tree of the eastern coastal region, although it is also found in the eastern Gulf Coast. From southern Maine to southeastern Mississippi it grows almost entirely in fresh water swamps, on lands subject to frequent overflow, and along small streams. Few forest trees grow in denser stands. It often occupies extensive areas to the exclusion of all other trees.

In the most favorable locations this graceful and symmetrical tree extends its spire-like head to a height of 100 feet or more. The crown is composed of slender horizontal limbs with somewhat drooping branchlets. Trees in the forest have long straight trunks and short narrow crowns. In open-grown trees, the crown is longer and has more taper and the trunk is much more limby. The average height is 70 to 80 feet, with a trunk diameter of two to three or four feet. In its northern range the tree is much smaller with a usual height of 30 to 50 feet and a diameter of one to two feet.

The slender twigs, arranged in fan-shaped sprays, are bluish green at first, becoming light reddish brown during their first winter and eventually, dark brown.

The minute, scale-like, closely overlapping leaves, one-sixteenth to one-eighth of an inch long, are closely appressed and clothe the twigs to the extreme end, making flattened sprays. On vigorous shoots the leaves spread somewhat toward the ends of the twigs. The buds are without scales, very small, and inconspicuous, and are protected by the scale-like leaves.

The flowers, which appear in early spring, are very small inconspicuous bodies at the ends of the twigs, the male and female being borne on different branches of the same tree. The staminate are dark brown below the middle and nearly black toward the apex, oblong, four-sided, and about one-fourth of an inch long. The pistillate flowers are nearly spherical, pale liver-colored, about one-eighth of an inch in diameter and consist of three pairs of ovate, acute, spreading scales set at right angles, with minute, black, rounded ovules on their upper or inner sides.

Standing erect on short leafy branchlets, the spherical cones, about one-fourth of an inch in diameter, are light green when fully grown, changing to bluish purple and finally dark reddish brown when ripe. They mature at the end of the first season, opening in September and October, and remain on the tree for two or three years. The cone scales end in sharp points and each fertile scale bears from one to three rounded, slightly compressed, gray-brown seeds about one-eighth of an inch long with wings about as broad as the seed and darker in color. Large crops of seed are produced nearly every year, some trees beginning to bear at an age of four or five years. The small winged seeds are widely distributed by the wind and the seeds take root readily in moist soil.

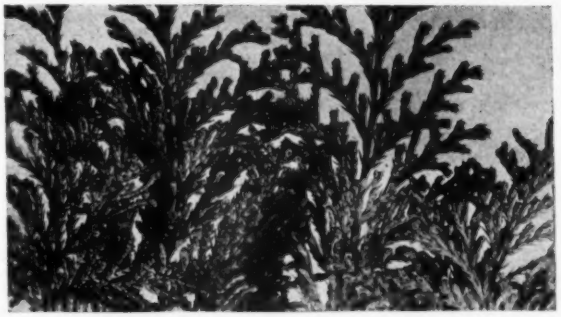
The reddish brown bark is quite smooth and thin on small branches and young trees. On the trunks of old mature trees, however, it is divided irregularly into narrow, flat, connected ridges, gray on the surface and separating into long, loose, plate-like scales, which peel off into tough fibrous strips giving the trunks a shaggy appearance.

The wood is generally straight-grained, with a fine and uniform texture. It is light in weight, a cubic foot of air-dried wood weighing about 23 pounds, moderately soft, weak, and low in shock-resisting ability. It shrinks and warps very little in drying, holds paint well, and is easy to work with tools. The heartwood is light brown tinged with red or pink, the thin sapwood lighter. The wood has a slightly spicy, aromatic odor when freshly cut. In resistance to decay the heartwood ranks with the most durable woods, and because of its durability much of it is used for siding, porch lumber, shingles, poles, small boats, tanks, and pails and tubs, especially ice cream packing tubs where its light weight is an additional advantage. It is very suitable for telephone poles because the trunk is straight with a uniform and moderate taper and is usually free from limbs for the greater part of its length, and because the wood is durable and light. Small trees, down to three inches in diameter, are used for shade tree and grape stakes, bean poles, oyster stakes and similar products.

There were formerly large stands of Atlantic whitecedar in the swamps of southern New Jersey and in the Dismal Swamp region of Virginia. A rough estimate of the present stand has placed the total in the United States at 300,000,000 board feet. The total annual cut of Atlantic whitecedar has been estimated at 12,000,000 board feet.

Because of its thin bark and highly inflammable foliage, the tree is very susceptible to damage by fire. It is nearly free from insect attack, however, and only slightly susceptible to fungi. It is occasionally planted as an ornamental tree, and will grow under cultivation on almost any soil. There are several horticultural varieties.

From Maine to Mississippi the Whitecedar is found almost entirely in fresh water swamps and along small streams



L. W. Brownell

Small and inconspicuous, male and female flowers appear at the ends of different branches on the same tree

L. W. Brownell

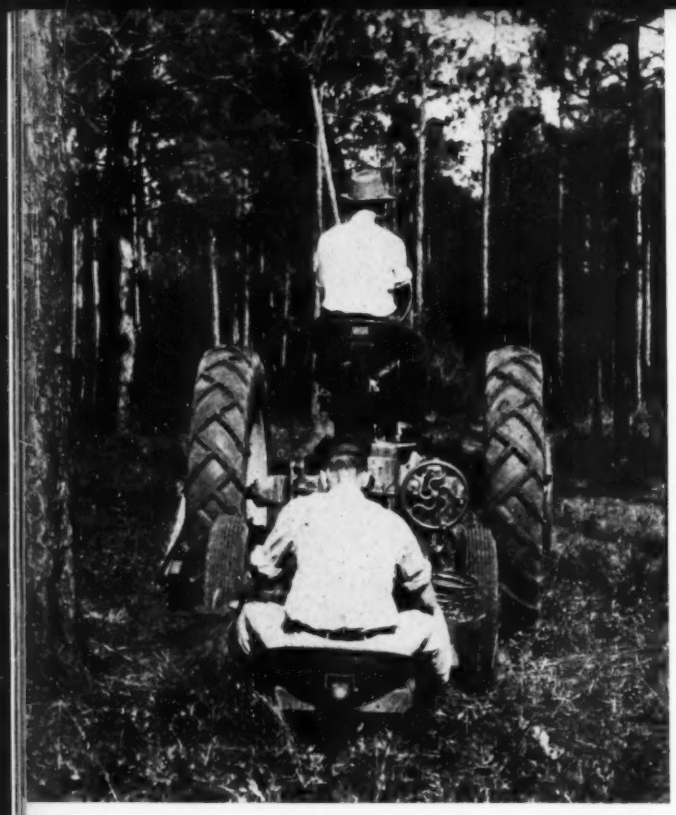
Minute, scale-like, closely overlapping leaves clothe the twigs to the extreme ends, making flattened sprays

L. W. Brownell

The short spherical cones are light green when fully grown, and bluish purple and reddish brown when ripe

Lindsey, U. S. Forest Service

Old mature trunks are shaggy in appearance, the gray bark being divided irregularly into narrow flat ridges



TREE PLANTER FOR THE SOUTH

Costs are slashed as new machine replaces hand labor in old fields and on cutover lands

By ROBERT N. HOSKINS

WHILE mechanized tree planters have been successfully developed for other sections of the country, only within the past year has such equipment been demonstrated to work successfully in the South on old fields and cutover lands where dense ground cover of grass and bush is prevalent. This is the Lowther Tree Planter, a simple and yet rugged piece of machinery which can be pulled by any light farm tractor. Only two men are required for this operation, one to drive the tractor, the other to operate the planter.

Early indications are that an average of 10,000 trees a day can be planted with this machine, or approximately 500,000 trees during a planting season. The greatest production thus far reported was in Mississippi where 14,000 trees were set out in a nine-hour day. By hand planting methods, two men can plant 1,000 trees in an eight-hour day.

Two features have been incorporated in the design of this tree planter which may mean universal adaptation. First, the rolling coulter, placed immediately ahead of the plow, cuts through grass and roots up to two and a half inches, and when unable to sever the roots—or any other object—it will roll over them, thus protecting the plow point from possible snagging. The second feature deals largely with the unique and novel action of the planting plow. It opens up a two-inch slit to a depth of nine inches in the soil, displacing the soil upwards. The soil is held in this raised position until a seedling, planted by hand, is placed in the slit; then the soil is released to its original position. Pneumatic packing wheels follow the plow and pack the soil firmly around the roots. The

(*Turn to page* 231)

A seedling is placed in the slit. An average of 10,000 trees a day can be planted

Seaboard Air Line R.R. Co.

A circular knife precedes the plow, cutting roots up to two and a half inches thick

Louisiana Forestry Comm

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- WORKS ON SLOPES UP TO 30%...
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●Plant up to 10,000 seedlings per day with the new Lowther Tree Planter. Built by the makers of the famous Lowther C-Saw, the new Lowther Tree Planter is the ideal tool for reforestation projects and nurseries. This revolutionary Planter is designed for efficient operation in all types of soil. A coulter wheel cuts through sod and slices roots. Behind the coulter, a lister type plow opens the cut without casting the soil to allow the operator to spot seedlings at the correct depth and spacing. The furrow is closed by compaction wheels which trail behind the plow. Readily handled by a tractor of 30 H.P. or more, the Tree Planter is designed to work on slopes up to 30%.

Extensive use on reforestation projects indicate *savings of 80%* over hand planting methods. For more complete information write for folder AF547 or mail coupon below.

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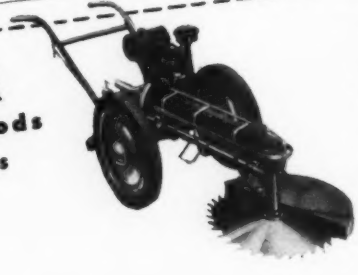

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By The Makers of The Famous LOWTHER C-SAW

COULTER WHEEL CUTS SOIL and ROOTS

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PLOW ACTION OPENS and CLOSES FURROW...

Following just behind the coulter, the lister type plow lifts the soil upward and slightly outward. A 2" furrow is opened without casting the soil. After planting, the soil is released to fall in its original bed without distortion and the furrow bottom is closed.

WORKS ON 30% SLOPES... IN ALL SOILS

The low center of gravity plus down draft of lister plow hold the Lowther Tree Planter on side hills of 30%. It works equally well in heavy sod, scrub growth, and cut over wood lands — in a variety of soils.

managing your WOODLANDS

A page dedicated to the management of woodlands, large and small — practical suggestions in procedure and technique and in the solution of problems on the ground.

What is your problem? American Forests will assist you in finding an answer. Address queries to The Woodlands Editor.

FRUIT TO FIBER

By J. A. COPE

From a poor orchard site to a stand of fast-growing trees — a 20-year accomplishment

THE water-laid soils of the old lake bed bordering Lake Ontario in western New York range from sands to loams and are splendidly adapted to fruit growing. Sometimes, however, there occur in these better soils, patches of fine sand that defy successful production of fruit crops.

Addison Weed, a prominent orchardist of Wayne County, had such a patch on his fruit farm. Apples failed to survive, and even raspberries finally petered out. Fifteen acres of perfectly flat land lying idle in the midst of his orchards was certainly not to be permitted. Mr. Weed decided to put it into trees, just as Frank Salisbury (see American Forests for September, 1944) had done with similar sandy land in Ontario County.

An earlier experience with a wind-thrown Carolina poplar, the logs of which were put into apple crates, gave direction to his choice of planting stock. "There is always need for apple crates on a fruit farm," he reasoned. "Why not grow my own?"

In the spring of 1924, remnants of a raspberry patch were ripped out and the whole block plowed and fitted as though to be planted to an annual crop. With an old corn marker, the pegs set five feet apart, the area was checkerboarded.

Six-inch cuttings from two-year wood on his dooryard Carolina poplar trees were obtained in February and stored, in bundles of 100, in damp sand in the root cellar until planting time.

"Planting could be done as fast as a man could walk," Mr. Weed reported, as he recalled that experience some years later. "I put the cuttings in at each five-foot intersection, and on a slight slant to prevent the sand from shrinking away from the stems. This, I found, causes drying out. The depth of planting was arranged so that only one bud on the stem showed above ground.

"We had a very wet spring that season and, surprisingly enough, practically every one of those cuttings sent up a vigorous sprout. By fall they averaged five feet tall."

"What about cultivation of the plantation?" he was asked. "Do you believe it important or necessary in the case of deciduous stock?"

"Absolutely," was his emphatic reply, "I cultivated this plantation both ways for two seasons. That's why it's important to have the field criss-crossed before planting."

By the third year the trees had grown so fast it was impossible to go down the rows with a one-horse cultivator. Many measured two inches in diameter at breast height, and were 15 feet high.

The writer next visited the plantation in the fall of 1933, after 10 growing seasons, and it showed rapid development. The poplars now averaged nearly four and a half inches in diameter and over 30 feet in height. But the five-by-five spacing was hastening the death of side branches, so that many of the trees had less than one-fourth of the total height in live crown. For a rapid growth rate of this species at this age, the live crown ratio should be around 40 percent instead of 25 percent. Obviously, a thinning was called for.

With the approval of Mr. Weed, it was decided to make a drastic thinning on one acre, to see what the effect would

(*Turn to page* 238)

To improve growth rates in the stand, 75 percent of the poplars were killed with sodium arsenite

CONSERVATION IN *Congress*

By A. G. Hall

Public lands in Alaska would be open to settlement by veterans of World War II under S. 991, introduced on March 28 by Senator Young of North Dakota. While national parks and monuments and certain other types of public lands are excluded from homestead entry, the bill leaves the national forests wide open for acquisition by veterans.

Homestead sites would provide an economic base sufficient to support a family of seven according to the American standard of living. Agricultural claims would be for from 320 to 640 acres; grazing claims from 640 to 1,920; timber claims from 640 to 1,920, and mixed claims from 640 to 1,280. A new type of claim—for the raising and trapping of fur-bearing animals—might be made for as much as 960 acres. To make final proof of claim, a veteran would be required to spend a three-year period of residence on the land, of which six months out of each year would be in actual, physical occupancy. For each day of active duty in the armed services, a veteran would be given credit toward the general and specific residence requirements, up to a maximum of two years.

Upon a timber claim, the veteran would not be required to carry out specific practices of forestry in order to perfect his title, but he would have to satisfy the settlement officer that he was holding his claim for his own beneficial interest, and "is at least annually cruising the land." This bill would open to homestead entry more than 20 million acres of national forest land in Alaska.

The national forests of Alaska have another threat hanging over them in the bills designed to grant statehood to the territory. Examples are S. 56, introduced by Senator Langer of North Dakota, on January 6, and H.R. 1808, introduced by Representative Angell of Oregon, on February 10. These would turn over to the new state all public property, vacant and unappropriated lands within the territory. This is a departure from the precedent set when Arizona, New Mexico and Utah were granted statehood and the public lands in those territories were retained as federal public property.

A bill to establish the Franklin Delano Roosevelt Memorial Redwood Forest in Del Norte, Humbolt, Mendocino and Sonoma counties in California, was introduced on March 31 by Mrs. Douglas of California. This bill, H.R. 2876, is similar to H.R. 6201 of the 79th Congress. (see *American Forests*, June 1946).

The legislature of the state of Oregon has petitioned the Congress to repeal the authority under which the U. S. Forest Service has been able to acquire lands by exchange for government-owned stumpage and to restrict national forest land acquisition to such lands as may be acquired by appropriations of money from the federal treasury. In support of its petition, the Oregon legislature says that the Forest Service has acquired more than a million acres in Oregon by exchanging timber cutting rights on national forests for deeds to private property of equal value. This method of expending the public wealth, the legislature states, "is not only against the public interest, but is impairing the tax structure of the units of local government in the rural sections of the state."

The United States' part of the proposed international Quetico-Superior Park would be set aside as a roadless and wilderness area under H. R. 2642, introduced on March 20 by Representative Blatnik of Minnesota. The bill would affect those portions of the Superior National Forest in Minnesota adjoining the Canadian border. In introducing the bill, Mr. Blatnik stated that the Izaak Walton League, the Quetico-Superior Council, the American Legion, the Minnesota Conservation Commission, the Minnesota Arrowhead Association, the Boy Scouts and many county and local boards and groups had endorsed the project.

A companion bill to S. 582 (see *American Forests* for April) to authorize annual payments to states, territories and insular governments for the benefit of their local political subdivisions based on the fair value of the national forest lands situated therein, was introduced on March 21, as H. R. 2726, by Representative Engle of California. Mr. Engle also introduced on the same day, a bill, H. R. 2725, to establish a commission on federal contributions to states and local governments. The commission would be composed of the Secretary of the Treasury, chairman; the Secretaries of War, Navy, Interior and Agriculture; and the administrators of the Federal Loan Agency and the National Housing Agency. The commission would determine each year the amounts to be paid to the states in lieu of taxes on federal real property within the states. A somewhat similar bill, S. 959, was introduced on March 21 by Senator Butler of Nebraska, creating an 11-man commission with a chairman to be appointed by the President.

Early hearings are scheduled on the bill, H. R. 1330, introduced by Representative Barrett of Wyoming, on January 27, to abolish the Jackson Hole National Monument in Wyoming. In the meantime, Representative Barrett introduced on March 10, H. R. 2438 to repeal Section 2 of the Act for the Preservation of American Antiquities, under which the Jackson Hole Monument was established.

H. R. 2795, to reduce and revise the boundaries of the Joshua Tree National Monument in California, was introduced on March 26 by Representative Sheppard of California. It authorizes $215,000 for the acquisition of lands within the monument boundaries.

Representatives Norman and Jackson of Washington introduced H. R. 2750 and H. R. 2751 on March 24 to transfer certain lands from the Olympic National Park to the Olympic National Forest (see page 226).

An extension service for wildlife management would result from the passage of H. R. 2472, introduced by Representative Burke of Ohio, on March 10. This would authorize the Secretary of the Interior to cooperate with state officials and agencies in advising owners and custodians of lands or waters regarding methods to restore, rehabilitate and improve areas adaptable as feeding, resting or breeding places for wildlife.

The Senate Committee on Labor and Public Welfare has recommended

(*Turn to page* 233)

Elm Disease Quarantine Revoked

The federal plant quarantine on account of the Dutch elm disease has been revoked effective May 1, 1947. This quarantine was established in February 1935 and was last revised in October 1941. It was intended to aid in retarding the spread of the Dutch elm disease by preventing the establishment of new centers of infection through the movement of elm trees, logs, and parts thereof. The regulated area included parts of Connecticut, New Jersey, New York, and Pennsylvania.

The federal quarantine no longer provides practical means of preventing spread of the disease. Insects which carry the disease move considerable distances by natural means and quarantine action cannot prevent the natural spread of the disease through flight of these insects.

There are no known instances where the disease or the beetles which carry it are known to have been transported through the movement of elm nursery stock, one of the commodities mentioned in the quarantine. The shipment of elm logs and firewood, articles most likely to carry the disease, is largely local and within the range covered by natural movement of the beetles which carry the disease. The long-distance shipment of logs, if any, can be safeguarded more effectively by state action and with the local knowledge of risk that may occur.

P. N. Annand, chief of the Bureau of Entomology and Plant Quarantine, says that in many areas the Dutch elm disease is building up rapidly and in some sections the number of trees that have been killed are presenting serious problems. The revocation of the quarantine does not mean the bureau proposes to discontinue work on the disease. The enforcement of the quarantine has been a minor part of the program carried on during the last three years.

Fewer Ducks

For the third successive year American waterfowl populations have declined drastically, according to the annual inventory conducted by the Fish and Wildlife Service.

The January count shows total populations of ducks and geese amounting to only 54,000,000, a drop of 26,000,000 under last year's figures. However, Albert M. Day, director of the Service, does not now think it necessary to establish a completely closed season for the fall.

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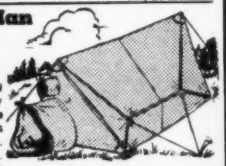

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The President's Arbor Day Message

In observance of the 75th anniversary of Arbor Day, President Truman on April 10 issued the following statement:

"Seventy-five years ago the pioneer settlers of Nebraska dedicated a day to the planting of trees. That was the first Arbor Day. Since then the observance of Arbor Day has spread to every state in the Union and to many countries.

"Arbor Day was established by Julius Sterling Morton, one-time United States Secretary of Agriculture, and life-long advocate of tree planting. As its founder said, Arbor Day is a national observance that looks to the future rather than the past. The trees which start growing today, whether we plant them with our own hands or they are seeded by nature, are the trees that will provide the wood for industry, and beauty and recreation, for the next and succeeding generations.

"The Diamond Anniversary of Arbor Day finds the nation never more appreciative of the indispensable value of trees. There is evidence of this on every hand. Throughout the nation the movement is spreading to keep America green, to prevent fires which needlessly and tragically destroy trees. Tree farming and tree growing by public and private agencise, and scientific management of our forests for permanent production, are gaining momentum. Only recently, in Washington, a great Forest Congress convened, the third such meeting in our history, bringing together representatives of agriculture, labor, industry, and government to consider the problems of our forests.

"And we have today, without quesion, a very real forest problem. Once, when the nation's vast forests seemed inexhaustible, we could afford to be lavish, even careless, with this great natural resource. Today, we are coming to think of trees as a crop which, with care and protection, can produce endless harvests of essential timber. The forests of the future will consist of trees we purposefully grow, rather than the trees we found here.

"The products of the forests contributed mightily to building this nation. They will be needed for our continued progress and prosperity. If this country is to be sure of an adequate supply of forest products, it must stop destructive cutting and unwise depletion, and build up timber growth.

"The inspiration of Arbor Day is a challenge especially to those who have our forest lands under their stewardship — the farmers and other smaller woodland owners, who own, I am informed, 64 percent of our commercial forest lands, the forest industries who own 11 percent, and our federal, state and municipal governments which own 25 percent. To them all, the nation looks for assurance that the productivity of our woodlands will reach an abundance adequate to our needs."

Park Service Suggests Olympic Boundary Change

The National Park Service has recommended certain changes in the boundaries of the Olympic National Park, Washington, to facilitate park administration. These boundary adjustments would eliminate 56,396 acres from the park.

The purpose of the Park Service recommendation is to attain a better boundary from the standpoint of administration and protection, following ridges whenever possible. And while it is not directed toward supplying stumpage for the use of local forest industries, it would have that indirect result. About two and a half billion board feet of merchantable timber would be made available for lumber operations.

During the 79th Congress when Senator Magnuson of Washington introduced a bill for the elimination of land in the southwestern portion of the park, the Park Service was in accord with his proposal and was prepared to endorse the bill, with slight modifications. In the 80th Congress, Senator Magnuson's bill (S. 711) has been reintroduced. In addition, Representative Norman of Washington, has introduced a resolution (H. J. Res. 84) calling for the selection of a committee, the majority members of which would be interested parties, to investigate the possibility of park boundary changes. The avowed purpose of the resolution is to determine how much stumpage can be eliminated from the park to serve the needs of the lumber mills of the Olympic Peninsula.

Secretary Krug has suggested that the Park Service recommendations be considered by the Congress, with appropriate hearings. Approved by the Secretary, the Park Service proposal has been submitted to the Congressional delegation from the State of Washington and to the chairman of the House Committee on Public

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Lands. It is suggested that the Park Service boundary proposals be incorporated in a bill which may be substituted for H. J. Res. 84 and S. 711.

In a recent statement, Newton B. Drury, director of the National Park Service, declared: "That national park forests are not required for the nation's lumber supply has been well established and adequately justified. All the forested lands in the national park system, including a large acreage of protection forests which would be of no commercial value, amounts to only 1.4 percent of the total forested land of the United States. The boundary revision proposed therefore must rest upon the recognition, gained through years of experience and study, of the desirability of establishing and maintaining a park that is susceptible of proper administration and protection. Among the advantages of the proposed new line are the elimination of private lands which interfere with both proper administration and protection, improvement of a very difficult road maintenance situation and the elimination of much cutover lands.

"The adjustments proposed effect the exclusion of considerable merchantable timber from the park — a considerable part of the forest stand that could be made immediately accessible or would be accessible for a long period ahead. To eliminate further stands, were this advisable from an administrative or protective standpoint, would involve forests that would be extremely difficult and costly to harvest. Apart from this practicable consideration, to remove more timber stands would definitely impair the grandeur of the last stand of virgin 'rain forest' remaining on the Olympic Peninsula and would seriously lessen the value to the nation of Olympic National Park."

The areas marked for elimination from the park are: Quinault, 18,185 acres; Queets, 2,270 acres; Hoh, 1,024 acres; Bogachiel, 15,878 acres; Calawah, 17,039 acres. For the most part, these areas would remain within the boundaries of the Olympic National Forest.

State Foresters to Discuss AFA Program

The Association of State Foresters will discuss adoption of The American Forestry Association's program of American forestry at its annual meeting in Yosemite National Park, June 16 through June 19, according to Ralph F. Wilcox, president of the foresters' group.

Most of the 30 points in the forestry program concern the work of the state organizations and the private industries operating within the states, and for these reasons are of particular significance to the state foresters, Mr. Wilcox said.

In addition to the forestry program, other items on the agenda include current legislation and measures dealing with fire prevention and control, insect and disease control, research and reforestation activities. California's State Forester Dewitt Nelson has arranged for special guided tours from Sacramento through Yosemite Park.

Senate Committee Blasts Grazing Administration

The final report of the Senate Committee on Public Lands and Surveys, made pursuant to S. Res. 139 of the 79th Congress, accuses the administration of lands under the Taylor Grazing Act of being fraught with irregularities and malpractices. "Law and regulations were yielded to expediency," the report states. In reviewing the dominant policies and practices of the Grazing Service the Committee had this to say: "These policies were the work of a very small handful of self-seeking, opportunist administrators whose actions brought widespread dissatisfaction and complaints on the part of the Congress and the many users of the public grazing lands.

"The former Grazing Service has been brought further to a state of confusion and present inefficiency by (1) the drastically reduced appropriations for administrative expenses, and (2) delays in fully implementing the reorganization plans for the consolidation of the Grazing Service with the former General Land Office.

"As soon as the word leaked out that the administration funds were to be drastically reduced by Congress, the first act of those in charge was to grant substantial salary promotions to the favored few, including those subordinates who had lent themselves to the policies and practices long in force.

"In meeting this transition period, an old practice of diverting to general administrative use funds appropriated for specific improvement project purposes was greatly expanded, in an attempt to keep the organization intact and functioning on the former

scale. This was accompanied by an intensive campaign to obtain additional 'contributed' funds by (1) donations from livestock users of grazing districts, and (2) the diversion of 50-percent funds by the advisory boards to administrative uses.

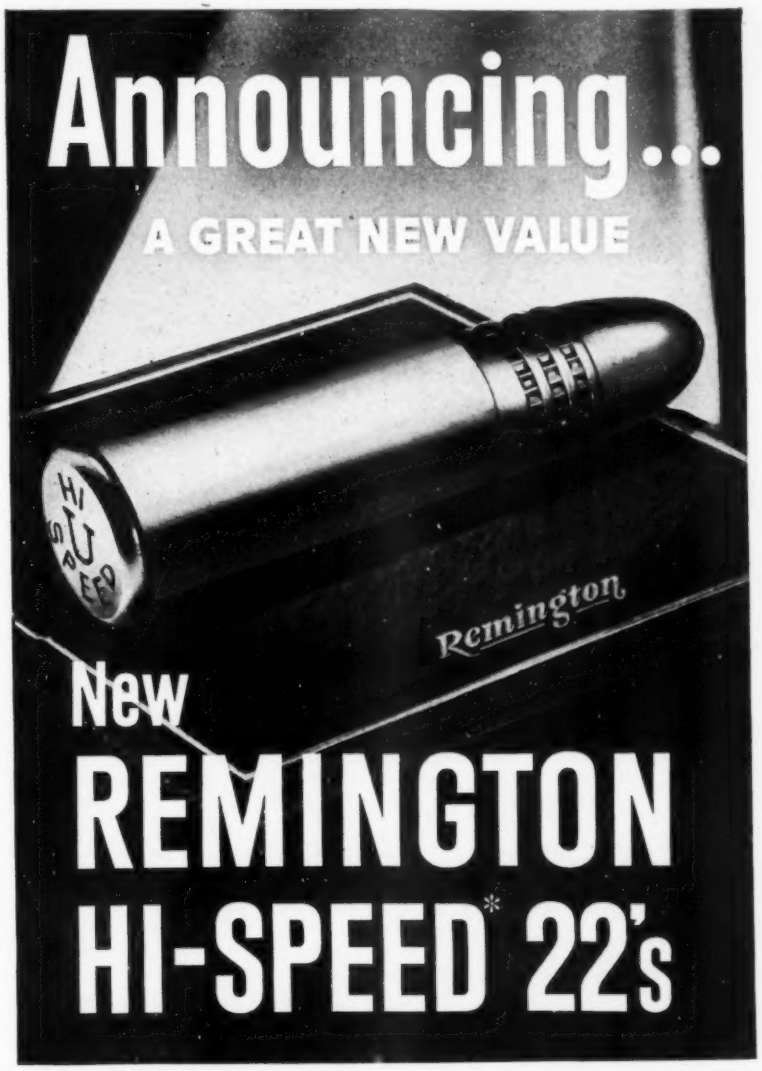
"For years the Grazing Service has, on a wholesale and increasing scale, used the large sums of soil and moisture conservation funds allotted to it to 'pad' its regular appropriation for administrative expenses . . . The practice has gone on in spite of repeated warnings, by the director of Land Utilization, in the Department of the Interior, that the use of soil and moisture funds must be confined strictly to approved project work.

"Since 1938, at least, the land policies of the Grazing Service have been dominated by an obsession to increase, at all costs, the areas of land under its administration; and never, no matter what the cost, to permit any diminutions of the administered areas, no matter how small the areas involved might be.

"This policy has worked much hardship and injustice upon a great number of applicants for homesteads and for the purchase of isolated tracts of land needed to add to going ranch setups. In order to acquire a homestead or isolated tract, it has been necessary for the settler to acquire, usually by purchase, some designated tract within a grazing district, then to offer this tract in exchange for the homestead or isolated tract sought, preferably outside of a grazing district."

In presenting the report, the committee expresses its hope and expectation that it may help the members of Congress, the Secretary of the Interior and the many users of the public range better to understand the situations arising from the administration of the grazing lands. "For several years," the report states, "there has been evident an increasing dissatisfaction on the part of users of the public grazing lands with the manner in which grazing matters have been administered. This dissatisfaction does not stem from the provisions of the Taylor Grazing Act. In fact, with comparatively few exceptions, the Act is looked upon by the livestock industry in the westrn public land states as beneficial and forward-looking legislation which they wish to see continued."

The U. S. Geological Survey recently completed the compilation of a map outlining all areas known to have been photographed from the air.



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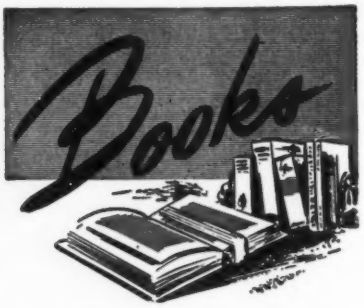

THE CORNELL PLANTATIONS—A HISTORY, by Ralph S. Hosmer. Published by the Cornell Plantations Committee, Ithaca, N. Y. 223 pages, illus. Price $3.00.

This book tells in an intimate way how there is being developed at Cornell University, by "the friends of things that grow," a new sort of botanical garden to which, at the suggestion of Liberty Hyde Bailey, has been given the name the Cornell Plantations. Starting with a plan for an arboretum this program now seeks, in Dr. Bailey's words, "to unify into one organic whole a series of enterprises that are based on the land." It includes the study of wild, economic, and ornamental plants, of trees, wildlife and other forms of nature; and, with such study as a basis, research in the development of better forms of plants and of animals for the wider service of man.

The second part of the book tells how the unique gorges that flank the Cornell campus have been preserved from encroachment, made accessible by paths and trails, and provided with continual care by funds established through the generosity of two alumni. The author, now Professor of Forestry Emeritus, served Cornell for 28 years as head of the Department of Forestry. A member of the Cornell Plantations Committee, he has been asked to serve as factor for the sale of the book. Orders should, therefore, be addressed to him at his home, 209 Wait Ave., Ithaca, New York.

GABBY AND THE FOREST FIRES, story by Ellen C. Dowling, drawings by Ed Nofziger. Published by The American Tree Association, 1214 Sixteenth Street, N. W., Washington 6, D. C. Price 10¢.

One of the best, if not the best, way for a child to learn about the damages of forest fires is to read about Gabby, the squirrel. He's an expressive little animal who is thoroughly entertaining while his experiences point out how disasters begin in his forest home. The 25 full-page drawings featuring Gabby are delightful.

THE WOLF IN NORTH AMERICAN HISTORY, by Stanley Paul Young. Published by The Caxton Printers, Ltd., Caldwell, Idaho. 149 pages, illus. Price $3.50.

Perhaps no other man has made such a complete study of the wolf as has Stanley P. Young, senior biologist of the U. S. Fish and Wildlife Service. The author traces the wolf through the pages of American history, from colonial times to the present, showing the effects of the animal's habits upon the economic and social life of the people. Like all persons who have hunted the wolf or who have lived in "wolf country," he shows a great respect for the animal's uncanny intelligence and ability to resist man's attempts to exterminate him.

THE CALIFORNIA GROUND SQUIRREL, by Jean M. Linsdale. Published by University of California Press, Berkeley, California. 475 pages, illus. Price $5.00.

Based on nearly 10 years of continuous observation of ground squirrels on the Hastings Natural History Reservation, Dr. Linsdale's study analyzes the physiology and habits of the squirrel with particular attention to the manner in which it adapts itself to changes in its environment. His approach is that of a naturalist who is interested in the ground squirrel, not as a pest to be destroyed, but as a natural phenomenon to be investigated and understood.

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SAGER AXES AND BULL DOG LOGGING TOOLS—KNOWN FROM COAST TO COAST

Tree Planter

(*From page* 220)

planter, which is about six feet in length, is mounted on automobile wheels and may be towed from one planting site to another rapidly by means of a trailer hitch.

The cost per acre in machine planting is about 20 percent that of planting by hand.

The Lowther planter has been thoroughly tested during demonstrations in several southern states during the past few months — demonstrations sponsored by the U. S. Forest Service, the Forestry Division of the Seaboard Air Line Railroad Company, and the state forest services of Virginia, North Carolina, Georgia and Florida. A further successful test was made in Tennessee on TVA lands with a slope of 30 percent.

Greece

(*From page* 203)

when asked what was needed to effect a constructive forestry program, listed the following: (1) security—protection from the attacks by the royalists and the liberals; (2) more guards to control the local population from further vandalism; (3) communication facilities; and (4) transportation. Unquestionably other district foresters would give the same answers for these are the principal problems which are found in every part of the country.

This is the picture of forestry in Greece today—far from encouraging, but not beyond hope. A nucleus of trained foresters in the Ministry of Agriculture has developed plans for rehabilitation of the forests and the forest industries. Given security, some technical assistance, and assured of continued financial support they can restore some of the more productive forest areas. Steps must be taken to stop the depletion of all natural resources, not so much from the standpoint of attaining self-sufficiency, but more from the broader aspect of stability in agriculture and industry. Otherwise economic security cannot be attained. Perhaps there is a moral here, too, for Americans.

LUMBER CONGRESS

An American Lumber Congress has been called in Chicago for June 16 to 18 — the first nationwide meeting to be held by the industry in 25 years.

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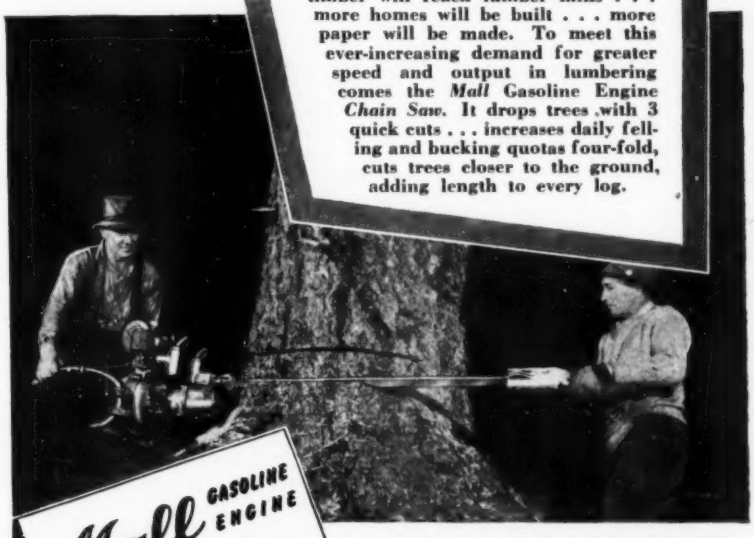

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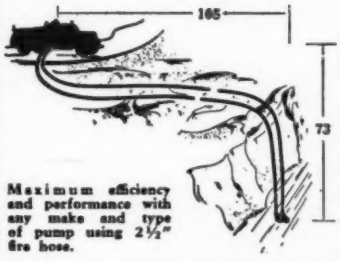

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But — using the Hi-Lift Booster this pumper can deliver 208 gallons of water per minute in a powerful, high pressure fire fighting stream.

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Thus, while you gain greater name-recognition through repetitive personal advertising, you also sponsor a most necessary educational drive. And for this civic-minded activity you win increasing public approval.

On your part, the effort is slight; the expense little; the rewards potentially fabulous.

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Fishing License Sales Skyrocket

Fishing holidays for fresh-water anglers swelled license receipts during the fiscal year ended June 30, 1946, to pour an all-time high revenue of $15,877,361 into the treasuries of the 48 states through the purchase of 11,068,717 fishing licenses, according to a report released in April by the Fish and Wildlife Service.

Compared with the previous year when 8,280,232 licenses were sold by the states for $10,580,311, the 1945-46 season totals show an increase of 2,788,485 in licenses and $5,297,050 in revenue received by the various states.

California ranked first in revenue with $1,545,026. Massachusetts was in second place with $1,223,995, followed by Minnesota with $1,017,686; Michigan, $948,453; Pennsylvania, $918,200; Wisconsin, $909,258; New York, $799,620; Ohio, $633,035; Washington, $521,475; Illinois, $520,743; and Missouri, $507,418.

In the number of licenses sold, Michigan exceeded all other states with 904,557. California was second with 764,557, followed by Ohio with 718,842; Minnesota, 627,907; Pennsylvania, 567,000; Illinois, 560,310; New York, 551,927; Indiana, 534,156; and Wisconsin, 517,864.

Non-resident licenses during the 1945-46 season amounted to 1,093,099, an increase of 335,240 over the preceding year.

Conservation in Congress

(*From page* 224)

the passage of S. 526 establishing a national science foundation. The bill as reported (Report 78) on March 26 is a compromise between S. 525 and S. 526. It would establish a foundation of 24 members to be appointed by the President with the advice and consent of the Senate. As amended the bill has the support of Senators Magnuson, Fulbright, Saltonstall and Thomas who had collaborated on the introduction of S. 1850 in the 79th Congress.

Representative Engle of California introduced H. R. 2615 on March 18 to provide authority for the cooperation of the Department of Agriculture with other federal agencies, states and private organizations or persons in the protection of forests against destructive insects and diseases. The degree and type of state or private contributions toward control work on non-federal land would be left to the Secretary of Agriculture to decide.

The bill, H. R. 731, to create the Theodore Roosevelt National Park and Monument in Medora, North Dakota, which passed the House on March 3, was passed with amendments by the Senate on April 7.

They Love the Canyon

(*From page* 205)

"Yeah, I've heard that old gaff before," the canyon guide sneered.

"Oh, yes," the devil agreed again, "you've heard it. In fact, you told it. That's why you're here."

Animal life of an exceptional intelligence is known by scientists and others to inhabit the Grand Canyon. One Oscar M. Pound, cowpuncher and canyon guide, relates a story about his pet rattlesnake, Grover, which he captured while prospecting.

Mr. Pound raised the snake from a youngster, trained him as one would a watchdog. In due course, prospecting resulted in Mr. Pound's collecting a bag of gold dust, whereupon he departed for town and put up at a hotel for the night, leaving Grover in the room while he went out for supper.

"I stayed out later'n I'd meant to," Mr. Pound tells. "I always do when I get to town after a spell in the ditches and hills. And 'long about midnight, I guess, some fool burglar crawled in the winder of my room and was huntin' my sack of gold. He must have heard me braggin' about it when I first got to town.

"Grover woke up, and let the burglar get in. It was plumb dark in the room, so Grover decided to rattle. He rattled sharp and loud. That burglar knowed right now what it was; he knowed a deadly rattlesnake rattle for a fact, and got plumb stampeded. He started for the winder, but Grover darted over that way and rattled and headed him off. He started for the door, but Grover headed him off that way, too. So he just crawled under the bed covers and scroonched up and shivered.

"Well, sir, Grover clum up the windersill and throwed the ketch which let the winder down and locked it. Then he went over to the door, clum up and wrapped hisself around the doorknob, stuck his tail through the keyhole and rattled for the sheriff.

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Expedition No. 1—July 7 to July 18—$172

The Flathead-Sun River Wilderness of Montana—a country of rugged grandeur just south of Glacier National Park and straddling the Continental Divide.

Expedition No. 2—July 12 to July 19—$129

The Flats Tops Wilderness of Colorado—beautiful alpine meadows, forested valleys and flat-topped timberline peaks, with camp site on the shore of one of the Island Lakes in the center of this magic back country.

Expedition No. 3—July 18 to July 29—$172

Same as Expedition No. 1

Expedition No. 4—July 19 to July 26—$129

Same as Expedition No. 2

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Expedition No. 6—July 22 to August 1—$168

The magnificent Sawtooth Wilderness of Idaho—a wild kingdom of serrated mountains, alpine lakes and alpine forests.

Expedition No. 7—August 1 to August 13—$174

The Maroon Bells-Snowmass Wilderness of Colorado —where the rugged mountain grandeur of the Rockies reaches dramatic heights.

Expedition No. 8—August 5 to August 15—$168

Same as Expedition No. 6

Expedition No. 9—August 15 to August 27—$174

Same as Expedition No. 7

Expedition No. 10—August 31 to Sept. 11—$167

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which come and arrested the burglar."

A true story about the marvelous qualities of Grand Canyon soils and climate has been credited to the late Dick Wick Hall, noted Arizona humorist.

It seems that a squatter took up land down on one of the canyon levels and set to farming. First, though, he built a barn, by cutting four cottonwood saplings for corner posts, sticking them in the ground and nailing boards over and around them.

Next morning he noticed his posts had taken root and were growing, and the farmer spent half his time after that nailing more boards on the bottom of his barn to keep the chickens and horses in.

Before the end of the week he had a two-story barn, and by the end of the month his barn looked like the Washington Monument, with a gable roof on it, so fast and tall did those cottonwoods grow.

The same farmer had a lot of other trouble, too. The first year there his crop was a financial failure. He planted all watermelons, but the soil and climate were so good that the vines grew so fast they wore the melons out dragging them around the field.

Merridew Pound gives another true account of the family pride which is included in a rattlesnake's character.

Rattlers and road runners both inhabit the Grand Canyon and are deadly enemies. The runners are long-legged birds as big as pigeons. They have sharp scissor-like bills. Nothing delights them more than to catch a rattler and slowly peck his brains out.

Once Mr. Pound was down in the canyon and saw a road runner catch a rattler asleep.

The rattler knew he was licked, but rather than beg for a quick and painless coup de grace, or suffer ignominious torture from the bird, he simply turned around, tied a knot in himself and choked himself to death.

The sunken mountains and peaks that form the spectacular contour of the canyon also serve to do indescribable things to the air currents in that great gash. There is the case of one Simpson Cass, a guide, who is credited with knowing more about the winds of the canyon than any other living individual.

Simp Cass boasts not so much of his knowledge of the winds as of the fact that he once fell over the canyon rim and lived to tell it. How? Well—

"Yes, sir, a up-current. Wind runnin' right straight up. Acted as a

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cushion and stopped me from fallin' and throwed me right back up till I grabbed a limb and clum down."

The climate of the Grand Canyon is credited with some of the remarkable flora and fauna in and about it. Most of the residents there become enthusiastic boosters of the climate, its health-giving and invigorating qualities. Indeed, they are sometimes prone to exaggerate, and make claims that, obviously, no climate could live up to. But on the whole, exaggeration is not necessary. The simple truth will suffice.

One of the incidents of record, concerning Grand Canyon climate, originated with an old trapper who has spent more than half his life in quest of Grand Canyon furs.

One November he caught a bear in a trap. While taking the bear out, the bruin got loose, and the trapper just managed to cut off its tail. Do you know what happened then?

Right. The bear grew another tail, that same day, so marvelous is canyon climate.

The trapper took the tail home and before the month was up the tail had grown another bear onto it!

An actual experience of Colonel Bartholomew Sutherland—the colonel himself says so—has to do with falling over the canyon rim, with a somewhat unusual result. He is one of the few people who have fallen over and lived to tell it.

"It all come about," says he, "because of that fiery little roan I bought from a man in Utah. That was as skittish a piece of horseflesh as I ever owned. Scary and jumpity as a bull frog.

"One day I was sitting on him about 100 yards from the edge of the canyon there, talking to some friends. Suddenly another horse sneezed right behind mine. That roan jumped and started running full speed. I tried to whoa him, but he was so startled he ran on over the edge of the canyon with me before I could quiet him. It was 4,000 feet straight down there, too, but that hoss never hesitated an instant, an' over he went!"

The colonel pauses here for encouragement. It always comes. "But colonel, why weren't you smashed to pieces in that tremendous fall?" is the usual query.

"Well, when the horse was about 10 feet from the ground," he explains, "I jumped off. The horse fell 4,000 feet and was killed, but I only fell 10 feet and wasn't hurt."

Greatest of all the natural wonders which the world affords, the Grand Canyon is also one of the most famous. Famous first and justly for its majestic beauty as a whole, secondly for the extraordinary nature of its many component parts. Where else, for example, can you find a natural oddity to compare with its Petrified Farm?

Sure, the Petrified Farm. It's down on about the third level of the canyon. Covers some 40 acres or so. All petrified pasture, with water like glass because it has been petrified all these centuries. Some mountain bass and a few minnows petrified right in it. It's one of the main scientific wonders of the Grand Canyon. Not so well known because it's a day's trip down to it.

But it's all there, because Simp Cass, one of the canyon guides, went to it once, and had to walk back because his pack mule killed itself trying to eat petrified grass.

Big Bass Like Little Bugs

(*From page* 211)

One of the most pleasant experiences I have had with the little bugs is trying them out in the little ponds and lakes the natives insist are barren of bass. If there are pan fish in these bodies of water you can be reasonably sure there will also be fat bass. I once caught a five-pound big mouth in a farm pond owned by a friend of mine who had solemnly and sincerely informed me I wouldn't find anything bigger than a blue gill.

The fun of fishing in these little, allegedly bassless pieces of water is that if you can't find a bass, you can switch to trout flies and walk away with a creel of blue gills or sunnies. Besides, there's always a nice sense of adventure as you make your casts.

Few have the time, leisure and money that will enable them to go to the far places where trout abound. Using the little bugs, however, they can find some grand, exciting and productive bass fishing, usually close to home. Consolation fishing!

After all, what most fishermen want is sport—and fish for the table. The little bugs, carefully selected, competently used, will give them both.

Try the little bugs. Give them a real, honest, thorough test. Put into your casting all of the skill and science you have acquired on your

trout streams. You are bound to get strikes; you will tie into fish that will give you thrills and that will test your ability to the limit.

Best of all, you will seldom return home with an empty creel. Man, how your stock as a fisherman rises in the family circle!

That's one of the best dividends the little bugs will bring to you.

Forests Overseas

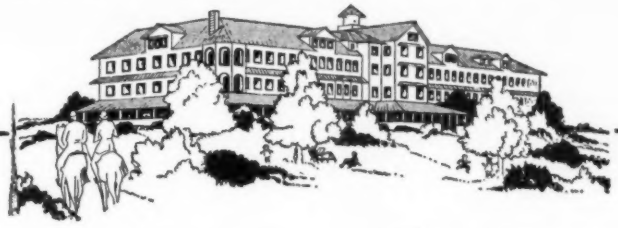
(*From page* 208)

which produce fruits too resinous to be attractive to hoarding animals, and these must be gathered by humans directly from the branches. Most important among these are the several cedars, four or five genera and upwards of a dozen species. The redwoods, similar to certain of the cedars in the shape and appearance of their seeds, are nevertheless sometimes collected and eaten by various small animals. A few other conifers, such as hemlocks and larches, produce seeds so tiny that the larger rodents rarely bother to gather them when meatier kinds are abundant.

Picking cones from standing trees is laborious, but it is the method that often must be used with all species when seed is desired from specially selected trees in a stand. Forest rangers, wardens, stump-ranchers and even lumberjacks are employed to do this work. In earlier days it was regarded by the "he-men" of the woods as a "sissy occupation," but with the wide spread of forest planting in the timbered regions this attitude has changed to one of interest or at least of curiosity, plus the willingness to try anything once.

Not the least noteworthy feature of supplying tree seeds to foreign planters is the effort now customarily made to secure seeds from selected trees in localities where the climate is similar to that of the place where the new forest is to grow. Foreign foresters are familiar in a general way with the climate of our several forest regions; they know that the southern pines come from a country of long, hot summers, and that the slash pine is least able to stand cold, with the longleaf next in hardiness and the shortleaf best able to stand rigorous weather. They know, too, that New England and the Lake States are cold weather regions, while our central Atlantic states offer a considerable range of climate. So they often specify the locality from which they desire to obtain seeds of each species.

Collectors in the Pacific Coast re-



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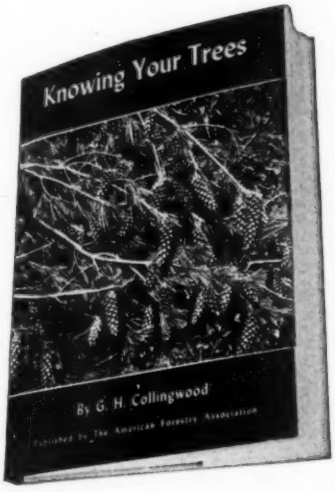

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gion can offer seeds from widely varying climates in the same state. The features of climate in which foresters are most interested are precipitation (rain or snowfall) and frost-free period, or the number of days usually elapsing each year between the last killing frost in winter or spring and the first in summer or fall. Along the western coast rainfall ranges from 8 or 10 inches to as many feet! And frost-free periods vary from less than 30 to more than 200 days between timberline and sea level.

The coming of frost is related to elevation over most of the region, as is the amount of rainfall, although the latter diminishes generally as one moves eastward from the coast line. The reasons for this situation are interesting, but somewhat too complex to be dealt with here. The net result is that collectors of tree seeds in the region can offer to duplicate just about any climate that can be found anywhere in the world that trees grow, outside the tropics.

Seeds to be planted in the Alps should come from high up in the Cascades or Sierra. Sitka spruce for Norway should thrive if the cones are gathered in the Queen Charlotte Islands or Alaska. Conversely, for planting in the Netherlands and coastal Belgium, the source should be near sea level in Washington or Oregon. The method of matching source and planting site is merely suggested here; actually climatic keys have been very carefully worked out from weather records and the service has become quite scientific and trustworthy. Foresters overseas who insist upon such service can obtain it from several American collectors. Those who have done so long enough to be able to observe the results in their plantations would not purchase tree seeds under the old hit-or-miss method.

Little mention has been made of hardwoods or broadleaf tree species. There are literally hundreds of them, and small quantities of the fruits or nuts are sent overseas every year. Yet the total volume and value of such exports is negligible in comparison with the trade in conifer seeds. Probably upwards of 30,000 pounds of conifer seeds have been sent to Europe and the British Isles this current winter; nearly enough to replant a million acres of denuded land. This notwithstanding the fact that foreign foresters harvest as many cones as possible from their own plantations. Actually, the older stands in Australia and New Zealand are yielding enough seed to make them all but independent of America in the years when their crops are abundant.

The two influences most damaging to American seed collectors and exporters are wars and increasing production in foreign plantations. It would appear that this interesting and lucrative business must peter out eventually. Yet in the past decade a new and highly encouraging factor has appeared; American foresters in federal and state services and many who work for private forest owners, are undertaking large planting programs. If and when America really gets to work planting trees on the scale demanded by the condition of its forests, several times as much seed will be required at home as ever went abroad in the biggest year of foreign demand.

Fruit to Fiber

(*From page* 223)

be in increasing growth rate on the remaining trees, and also to see if underplanting with crop hardwoods such as oak, ash and basswood would prove worthwhile.

A 75 percent reduction in Carolina poplar stems —there were 1,740 trees an acre — was agreed upon. This meant taking out every other row and then every other tree in the remaining rows. leaving approximately 450 stems to the acre. This poplar is a vigorous sprouter; so simply to fell the trees would not do. The resulting sprouts could well offer serious competition to the hardwood seedlings it was proposed to introduce. It was therefore decided to kill the trees below as well as above ground.

Consequently, in the winter of 1933-1934, a 10 percent solution of sodium arsenite was injected into the butts of 75 percent of the poplars on the experimental acre, using the Cornell Tree Killing Tool. This treatment was very effective; in fact, a rather careful count indicated that not only were the tops dead, but that there were no signs of sprouting on 98 percent of the treated stems.

In the spring of 1934, the underplanting of the treated area with oak, ash and basswood was carried out, placing the seedlings in the middle of the poplar rows both ways, thus duplicating the original five-by-five foot spacing. There was a special reason for experimenting with under-

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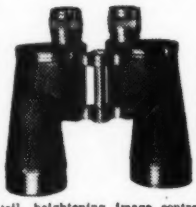

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planting of deciduous species in the partial shade of an established forest. It has long been observed in New York that valuable forest species such as oak, ash and basswood grow with vigor and rapidity as natural seedlings in the forest, but are extremely slow in becoming established when planted directly in open fields or pastures.

It is of interest now to look at this area 20 years after the establishment of the Carolina poplar, and 10 years after the underplanting with hardwoods. The poplars are carrying on in the upperstory and now average just under six inches in diameter. But the future of the stand has been transferred to the understory. The basswood, after repeated clipping back by rabbits, finally managed to get up to one inch in diameter and to a height of 16 feet (no one ever saw basswood grow that fast when planted on open land). A few swamp white oak (imagine that species in sand) are now vigorous and 12 feet in height. The red oak also suffered rabbit injury but has struck its stride. Over 50 percent of the trees are now 10 feet in height. The ash is apparently unsuited to the rabbits' palate and there are scores of thrifty 10-footers just a decade after the underplanting.

A surprising development in the area is the appearance of hemlock reproduction among the ash and Carolina poplars. The closest hemlock seed tree is 800 feet away. In between the seed tree and the plantation is a cultivated field with never a sign of a seedling hemlock. Mr. Weed has succeeded in establishing forest conditions on his sand patch.

Apparently the two-story effect of poplar and hardwoods on this site has brought about ideal conditions for the germination and growth of hemlock. There wasn't one in 1934 when the plantation was made. They have all become established in the last eight years. The largest in the plot is exactly 15 feet high. A close examination of the leader indicates two feet of height growth in 1944, two in 1943, one and a half in 1942—an unheard of growth rate for hemlock seedlings.

Undoubtedly Mr. Weed will eventually get some crate stock from the Carolina poplar on this acre, though the tremendous development in the understory is unquestionably cutting down the growth rate. Mr. Weed isn't caring too much because without that advance growth of poplar he never would have had such a growth rate on hardwoods—and now hemlock.

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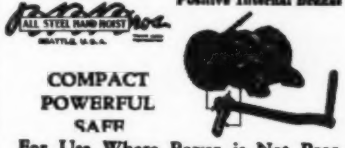

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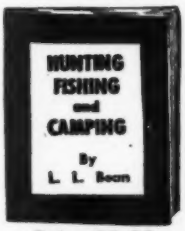

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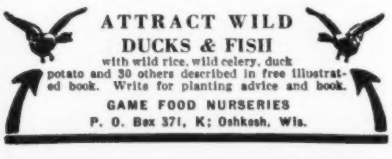

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Lumber from Logging Leftovers

(*From page* 215)

feet were converted to lumber. This setting is right in the heart of the Roaring River Logging Company's tree farm, a unit of the cooperative Willamette Valley tree farm system. Seed trees, of course, are not touched; in fact no falling is done at all, only down material being taken.

This project nets the Roaring River Logging Company one dollar a thousand feet of lumber salvaged for use of roads, not a sum they will get rich on, but they count their gain in the greater good the re-logging does in reducing fire risk by removing heavy material from potential young forest areas.

Partners pay credit to C. H. Watzek, president and general manager of Roaring River Logging Company, who has been keenly interested in the experiment from its inception and has given help and encouragement. Aid and advice came also from the Willamette Valley tree farm system's trained forestry staff and from the Oregon and California Revested Lands Administration.

In many of its phases, not the least of which is the capital outlay, the operation is rather unique. Nowhere in the rapidly expanding re-logging ventures of the fir region is there a mill just like this one. Nowhere are the financial aspects of converting salvage logs into lumber getting a more thorough and competent trial. This is no "quickie operation" to cash in on a good lumber market. The partners went in with their eyes open and invested hard cash for a sound plant so they could get started right and follow through.

In fact, if this operation works out as it gives every evidence that it will, they intend to build another re-logging mill for the same general area and feed the twin-mill production into a re-milling plant they already have under construction at West Scio.

"Some folks tell us we're going broke," said the partners, "but we don't figure it that way. This is not a quickie for the lumber honeymoon but a long-pull industry to dovetail in with the scheme of things to come. We think re-logging is here to stay and that the smaller units in the woods will have a permanent place in the picture. We think machinery developments will come along to help cut production costs."

Thompson added this final word: "We figure this type of forest clean-up has got to be done anyway and if it can't stand on its feet financially under average conditions maybe some incentive or help can be devised. Certainly it serves to stretch the timber supply and is good for the new forest. It makes jobs and more products from the forests. Its a cog in the wheel of sustained production."

Another American home per acre is much better than providing a billion meals for a billion bugs.

AUTHORS

OREN ARNOLD (*They Love the Canyon*), nationally known author, appears again in AMERICAN FORESTS, writing from Phoenix and about his favorite subject, the Southwest. HARRY BOTSFORD (*Big Bass Like Little Bugs*) of Pennsylvania, completed two books last year and has two more under way. One of his favorite subjects is fishing. J. A. COPE (*Fruit to Fiber*) is extension professor of forestry at New York State College of Agriculture, Ithaca. M. B. DICKERMAN (*What's Happening to the Forests of Greece?*) recently returned from a year in Italy and Greece where, with UNRRA, he helped inaugurate their postwar forestry program. He is chief of the division of forest economics, Forest Service, Missoula, Montana. ROBERT N. HOSKINS (*A Tree Planting Machine for the South*) is industrial forester for the Seaboard Air Line Railroad Company, Norfolk, Virginia. ARTHUR W. PRIAULX (*Lumber from Logging Leftovers*) feature writer, headquarters in Portland, Oregon. JOHN B. WOODS (*Forests Go Overseas*) was formerly director of the Forest Resource Appraisal.

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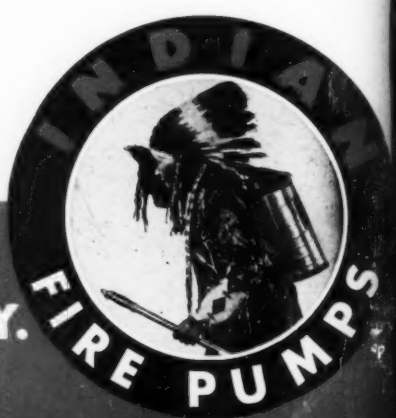

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